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MOTIVE-FORCE

AND

MOTIVATION-TRACKS

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MOTIVE-FORCE

AND

MOTIVATION-TRACKS

A RESEARCH IN WILL PSYCHOLOGY

BY

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TO

MY MOTHER

PREFACE.

Much interest has, of late, been manifested in the problem of Character-Formation, and Will-Education. Many books have been written on the subject, and psychological researches have been undertaken, with the object of elucidating various details of the problem. All serious Educators now aim, rather at training the Will and Intellect, than at burdening the Memory. The wisdom of Montaigne's saying is recognised : « *J'ayme encore mieulx forger mon âme que la meubler.* »

The problem of Character-Formation however, presents peculiar difficulties. It presupposes a Science of Man, capable of explaining the complex, vital dynamism of human activity. Such a science does not exist, and its possibility even is doubtful. Yet even if such a Science did exist, with all its principles fully developed, and accurately formulated, its application to practical needs would still be exceedingly difficult. « *Whether or no a science of man constructed in fluid*

or living terms is possible, it is certain that we cannot make the same use of it that we make of the other sciences. We cannot use it to predict or control the behaviour of men, as we use the others to predict and control the behaviour of the bodies or forces to which they refer » (1).

Towards such a science, be it realisable or no, the first step must be an efficient Psychology of the Will. Every phase of volitional activity must be fully analysed, and, as it seems to us, such an analysis is alone possible by means of the new experimetal method.

It was with the object of analysing some phases of the Choice-Process that the present experimental researches were undertaken. They were carried on in the Psychological Laboratory, of the Superior Institute of Philosophy, at Louvain University, during the academic years 1909-10, and 1910-11.

This thesis, submitted in part for the Doctorate of Philosophy, at Louvain, and afterwards as a whole, for the degree of Master of Arts, in the National University of Ireland, has been written under pressure of time. The author feels that he has neither done justice to the subject treated, nor to the materials at his disposal. Nevertheless, he feels that first efforts, towards an experimental knowledge of the Will are likely to be received indulgently, especially if they lead to some improvement or development of the method of this nascent branch of Psychology.

It has, then, been the first aim of the author, to

(1) L. P. Jacks, *The Alchemy of Thought*, p. 196.

secure that the method employed in these researches should be able to stand the test of criticism. No detail has been consciously neglected, and no improvement due to the development of the modern psyschical method has been ignored. In preparation for this research, the author has had the advantage of visiting many famous psychological laboratories : Leipzig, Berlin, Göttingen, Würzburg, Frankfort, Bonn, Grönningen, Utrecht, Ghent, etc., and of hearing the views of many eminent psychologists, Külpe, Müller, Marbe, Heymans, Rupp, Zwaardemacker, Van Biervliet, and others, on the method and technique of modern Psychology.

The standpoint adopted in this book is, of course, strictly empirical and experimental. The method is, in general, that of the Würzburg School, viz., *the Introspective Method*. This school might well take as its *motto* the Ἔνδον βλέπε of Marcus Aurelius (1).

It is hardly necessary to point out that this thesis is not written for the general public, presupposing as it does the discipline of Philosophy. It is distinctly technical, and the terminology of modern Psychology is employed. It is written for the those engaged in the study of the Will, and of Character. There are nevertheless, some chapters which may interest the general reader. It is well perhaps here, in order to forestall possible misunderstandings, to add a word of explanation with regard to the position of this work, with respect to the problem of the « Freedom of the Will. »

(1) Ἔνδον βλέπε. Ἔνδον ἡ πηγὴ τοῦ ἀγαθοῦ, καὶ ἀεὶ ἀναβλύειν δυναμένη, ἐὰν ἀεὶ σκάπτῃς. *Thoughts*, VII, 59.

This work is, as I have said, *strictly empirical and experimental*. It is beyond its aim to treat of any problem of metaphysics. It deals with the modest task of analysing and classifying Volitional *phenomena*. It is clearly, outside its scope to enter into a discussion of Free Will. Directly then, it cannot be said to establish any new proof of Freedom. Indirectly however, it shows the worthlessness of *the psychological arguments for Determinism*.

It remains for me, in concluding this Preface, to acknowledge certain claims on my gratitude. First, and chiefly, I am indebted to my Professor, Dr A. Michotte, for his able direction and kindly counsels, and for his goodness in acting as « Subject ». Next I must thank Dr F. Fransen of Louvain University, and Mr. J. Vance B. A. of Cambridge University, for their kindness in acting as « Subjects ». Finally, I owe much to the Rev. T. Sheridan S. J., B. A. Oxford University, who read over my MSS.

E. Boyd Barrett, S. J.

Louvain University,
June 1911.

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INTRODUCTION

We know little of the Will. We know not its activities, nor its laws, nor its psychical elements, nor its physiological manifestations. We know that, at basis, it is a process, vital, immanent, dynamic ; « not a permanent thing » writes Wundt, « but a rising progressing, subjective process » but how to describe or analyse that process, how to measure it or where to find its origin or conditions, we are unable to say. About Memory, Association, Vision, Audition, and Perception in general, we know much. A hundred minor points of vantage have been won in the siege of the mind. A hundred more are all but gained. « *The spying and scraping with deadly tenacity and almost diabolical cunning* », which according to Prof. James characterise the new psychologists, have not been in vain. The forces that hem in the mind are gradually summing themselves up into her overthrow. One citadel however, if we may continue the metaphor, remains impregnable—that of the Will.

The Backward State of Will Psychology.

We cannot refuse to adhere to the formula pronounced over a hundred years back by Schopenhauer « *I do not know my will in its totality, nor do I know it in its unity, nor do I know it perfectly in its essence* » — nor can we say more of the Will, than did Scotus as far back as the thirteenth century. « *Voluntas est vis immaterialissima et per consequens maxime a carne separata* » — for him it was mysterious, almost mystical, for us it is no less so.

Diversity of Will Theories. It would be difficult to exaggerate the diversity that exists between the theories of Will Psychologists as ancient as Aristotle, or as modern as Ach. Of this diversity Prof. Michotte writes (1) :

> Il est frappant de constater quelles divergences fondamentales séparent les divers auteurs non seulement dans leurs théories de la volonté, mais encore dans la façon dont ils décrivent les processus volontaires observables.

Some psychologists as Mr Stout regard the Will as conation and teach that « conation and cognition are different aspects of one and the same process » some as Külpe identify Will with the apperceptive process ; some as Münsterberg and Ebbinghaus explain Will by the mechanism of association ; other psychologists, of a less serious tone regard the Will as psychical force and attribute to it sympathetic vibrations, or identifying it with personal magnetism speak in awe of its mysterious powers.

For M. Bergson, let us add, the Will creates itself by willing, for M. Blondel the Will is the bud and blossom of Action, while for M. Paulhan the Will is above all a synthesis.

> Elle est essentiellement une synthèse psychique, nouvelle, active, mais elle est toujours mêlée à l'automatisme et aussi à l'activité suggérée, comme l'attention est toujours mêlée à la routine et à l'invention.

Reasons for the Backward State of Will Psychology. Without dwelling further at present on this diversity of doctrine, which is only natural in a science still in its beginnings, we propose to enquire into *the Reasons for the Backward State of Will Psychology*. It seems to us, that the reasons are to be sought for in the inadequacy of the methods employed, in the difficulties of analysing volitional acts, and finally in the tempera-

(1) Michotte and Prüm, *Le choix volontaire*, p. 121.

ment of Will Psychologists both ancient and modern.

a Inadequate methods.

Every department of Psychology suffered from the inadequacy of the old methods of Observation and Experiment, but none so much as Will Psychology. We find the same opinion expressed by Prof. Michotte ; *C'est surtout dans le domaine de la psychologie de la volonté que se fait sentir l'absence de méthode expérimentale* ». Here especially, painstaking, careful observation was called for. Here the complexity and delicacy of the phenomena to be observed demanded the utmost precision of method. For, as Wundt writes, « it is impossible to find out how a volition proceeds in any other way, than by following it exactly as it is presented to us in immediate experience ».

The fundamental fault of older Will Psychologists was according to Wundt, that

« instead of deriving a volition from its antecedent psychological conditions only the final result, namely the volitional act, was used to build up a general concept which was called Will, and this class concept was treated in accordance with the faculty theory as a first cause from which all concrete volitional acts arise (1) ».

Ribot, too, alludes to the same fault, in characteristic fashion.

Si l'on s'obstine à faire de la volonté une faculté, une entité, tout devient obscurité, embarras, contradiction. On est pris au piège d'une question mal posée. Si l'on accepte, au contraire, les faits comme ils sont, on se débarrasse, au moins, des difficultés factices. On n'a pas à demander après Hume et tant d'autres comment un « Je veux » peut faire mouvoir mes membres... c'est dans la tendance naturelle des sentiments et des images à se traduire en mouvements que le secret des actes produits doit être cherché (2).

(1) *Outlines of Psychology*. Wundt. (Judd). sec. 14.

(2) *Les maladies de la volonté*, p. 180. Although quotations from Ribot, Höffding, etc. are frequent throughout this volume, *the author by no means commits himself either to the views or standpoints of these authors*.

Such objections are at basis directed against the method employed by the older Psychologists. The latter, it is affirmed, had not grasped the full significance of induction, and were satisfied with observations and experiments that must be regarded as superficial.

To objections of this kind, directed against the non-experimental character of the Older Psychology, Scholastics offer a two-fold reply. Firstly, with M. De Wulf (1), they point to an immense number of interesting and important physiological and psychological observations to be found in the works of the schoolmen. Doubtless such observations were not methodically classified, but nevertheless they were neither unknown nor ignored. Secondly, with Cardinal Mercier, Father Maher and others, Scholastics while admitting a certain deficiency in the old Psychology, from the point of view of observation and experiment, point out very justly that Scholastic Psychology was principally Rational and as such did not call for so great a recourse to observation and experiment, as does Empirical Psychology :

> The two branches of the science of course employ both observation and inference ; but while frequent appeal to the facts of consciousness is a prominent feature in the first (the Empirical) stage, deductive reasoning prevails in the last (2).

Rational Psychology, being chiefly synthetic and deductive, has then naturally, less recourse to the immediate facts of consciousness, than Empirical Psychology.

It is not necessary here to recall the history of the new method in Psychology — how the method of the more advanced science of Physics came to be applied to problems of the mind. To Herbart (1776-1841) is

(1) *Histoire de la Philosophie » édiévale.*
(2) M. Maher, *Psychology*, p. 6.

usually attributed the honour of recommending the innovation. Kant is said to have declared the application of *quantitive* methods to Psychology impossible. About 1830 the suggestion of Herbart was put into effect by the psycho-physiologists, Weber, Müller, Helmholtz, Dubois-Reymond, and others.

The new Psychology advanced very rapidly, observation and experiment were used in every department and Wundt's dictum is to-day universally admitted that « *there is no fundamental psychological process to which experimental methods cannot be applied and therefore none in the investigation of which such methods are not logically required.* »

In spite, however, of this truth little attention has been paid to the Will Wundt, Külpe and a few American Psychologists made some desultory researches, which we shall examine later on, but it is only within the last few years that methodical work has really begun — chiefly at Louvain and Würzburg.

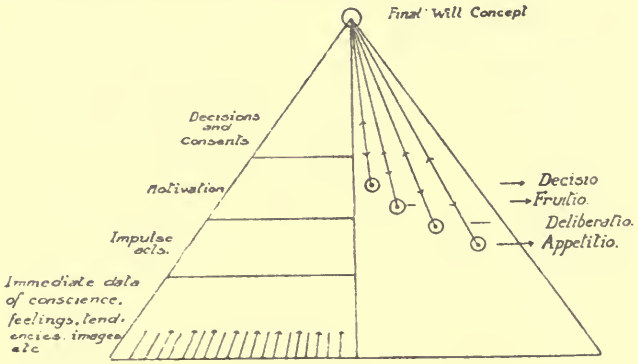
The spirit of the present method is to gain a concrete, definite knowledge of each element that makes up the psychical act, and of the laws which govern the welding or fusing together and the development of those elements. To-day we seek to measure and classify the sensations, sentiments, emotions, representations, and motive-forces which combine in volitions (1).

The spirit of *Rational* psychologists was, we have seen, quite different. They proceeded synthetically, deductively. The *facts* they usually considered were such complex abstractions as *electio*, *deliberatio*, *decisio*, *appetitio*, etc. They did not seek to analyse these acts,

(1) In the words of Cardinal Mercier (*Psychologie*, Préface) : « Cette conception de la psychologie est absolument dans l'esprit d'Aristote et de saint Thomas d'Aquin. Nous nous réjouissons de ce retour à la tradition des grands maîtres que nous nous faisons gloire de prendre pour guides. »

nor to translate them into sentiments, sensations and other psychical elements. Some of them, it must be admitted, never came down from the lofty regions of metaphysics to the terra firma of empirical facts, physiological and psychological.

If I may use a diagram, since they are in fashion, I should explain the matter thus :



In the triangle on the left, we describe the modern analytic method ; beginning from the immediate data of conscience and ascending inductively, through more complex will-acts towards the final will concept (1). Naturally many stages and elements are still to be discovered, but the process is sound.

In the triangle on the right we see the old synthetic method beginning from above, or at least beginning simultaneously from the final will concept and from complex will acts, and interpreting each in terms, of the other. The immediate data of conscience, as we shall see, are, somewhat neglected. The manner of proceeding is, of course, less sound.

(1) Vide Maher's *Psychology*, p. 6. « Starting from the knowledge acquired in Empirical Psychology regarding the character of the operations and activities of the mind, we draw further conclusions as to the nature and constitution of the root or subject of those activities. »

It should however, be admitted that every method is necessarily partly *synthetic*. The fault of the old method was that it exaggerated the *synthetic* and made less account of the analytic element.

b
The Complexity of Volitional Acts.

The complexity and evasiveness of volitional acts have deterred psychologists old and new, from attempting to analyse them. The schoolmen for the most part contented themselves with a few words, reverent in tone, in which they proclaimed the highly spiritual nature of the Will, and placed its abode in the reason. They refrained however from detailed analysis. Thus Aquinas writes : *Voluntas est in ratione ; ratio autem est potentia animae non alligata organo corporali : unde relinquitur quod voluntas sit potentia omnino immaterialis et incorporea.*

Modern German psychologists, with a few exceptions, (Külpe and his School), have been deterred from venturing on such dangerous ground. They have but little confidence in the reliability of introspection ; it is, say they, subjective and unscientific, and is held in odium by psycho-physicians, of the Leipzig school. Yet, introspection is, in Will Psychology, our only instrument, on which in the words of James, « we must rely, first, and foremost, and always. »

Some Psychologists, French and American mostly, have rushed ahead boldly. They have become enamoured of the pathological and the sensational. They have formulated many strange theories about Magnetism, Telepathy, and Psychical Force, and speak a strange jargon hardly in keeping with serious science. Beyond some neat descriptions, they have done little for Will Psychology — and, as, Mr J. Sully says — « a smart descriptive epithet may be purchased too dearly, if its dazzling effect blurs the sharp boundaries of scientific thought. »

Some Psychologists, after a brief examination of the complexity of volitional acts have gone so far as to affirm the impossibility of penetrating so thick a forest of psychical elements. Some have become bewildered in an attempted genetic derivation of the Will from the first impulse-action of the animal or child, or even from the chemico-biological affinities of the elements of the embryon cell. For Harald Höffding.

La psychologie de la volonté embrasse à vrai dire tout le domaine de la vie consciente. Les phénomènes appelés spécialement volontaires forment seulement le sommet d'un processus que s'étend à toute la vie consciente.

As a concrete instance of difficulties attending on the examination of some Will Phenomenon, let us point to the investigation of our « consciousness of action », or as it was called by James, « feeling of effort », or activity. Many experimental researches have been directed to the analysis of this elusive, protean-like phenomenon. It has, up to the present, evaded a firm grasp. Dynamic, fluctuating, mysterious, it baffles our efforts, and escapes from the traps set for it. Its importance is undoubted. The solution of many problems of the Will depend on its discovery—yet, it seems to defy all attempts to capture it.

Its existence, writes James, as a phenomenal fact in our conscience cannot of course be doubted or denied. Its significance on the other hand is a matter about which the greatest difference of opinion prevails. Questions as momentous as that of the very existence of a spiritual conscience, as vast as that of universal predestination, or free-will depend on its interpretation.

c Psychological Causes.

A third reason, for the backwardness of the science of the Will, might well be sought in certain « Psychological Causes ». Moderns, as we have seen, have either been too sceptical of introspection like the Germans, or

too oblivious of the difficulties of the task, like some French and Americans, to achieve any important results for Will Psychology. In the middle ages other causes were at work. Quite early in the post-patristic period of philosophy, and even earlier, the chief theses of Scholastic Philosophy, the Spirituality of the Soul, and the Freedom of the Will were proved with sufficient clearness to command almost universal acceptance. There seemed no special call for further psychological investigation. Philosophy had not yet been turned « topsy-turvy » by Descartes. It still tended outwards, examined the great questions of the creation and destiny of the world, and of man; and it did not confine its speculation to the field of consciousness and to epistemology.

There was, perhaps, an indifference and disinclination to pry too minutely into the soul. True, from a religious point of view, many thinkers closely observed their moral conscience, but they did not aim at a concrete knowledge of the mechanism of the mind. In a word they interpreted Socrates' γνῶθι σεαυτόν religiously and not psychologically. Their mentality was *toto coelo* different from our crazy, pedagogico-psychological mentality.

We have seen how backward Will Psychology is, and we have traced some of the reasons for that backwardness, dwelling especially on the contrast between the method and the spirit of old and new Psychology. What, then, is our exact position with regard to the comparative merits of the Old and the New Psychology? We find ourselves, here, in complete agreement with the eminent Psychologist and Leader of the Neo-Scholastic movement, Cardinal Mercier. We reduce, to three points, his opinion.

1° Scholastic Psychology alone has a solid basis, and is in a condition to utilise fully scientific data.

Seule la psychologie scolastique possède à la fois un corps de doctrines systématisé, et des cadres assez larges pour accueillir et synthétiser les résultats croissants des sciences d'observation (1).

2° Modern Psychologists are often lamentably in want of wide, general conceptions, and directive ideas.

3° Scholastic Psychology, while of course retaining its essential principles of the Spirituality and Substantiality of the Soul and the Freedom of the Will, which are truths for all time, is called upon to adapt itself more and more to the social and educational needs of the day. It is called on to utilise the data of modern science, especially of its sister-science Experimental Psychology. To quote Cardinal Mercier once more (2).

Est-ce à dire que nous regardions la psychologie de l'École comme le monument achevé de la science, devant lequel l'esprit devrait s'arrêter dans une contemplation stérile?

Évidemment non. La psychologie est une science vivante; elle doit évoluer avec les sciences biologiques et anthropologiques qui sont ses tributaires. L'arrêt de développement est, pour l'être vivant, une cause fatale d'anomalies et de monstruosités.

The New Psychology a Romanticism.

It is for these reasons that the new Psychologists, though often exaggerating the importance of their experiments and observations, have come so much in vogue, that they almost seem to take precedence of the Older Psychologists. Like the Romanticists, who rose up and overthrew the Classicists, they have robbed the older Psychologists of much of their glory. Indeed an analogy, objectively well-founded, might be drawn between the Romanticists in Literature and the new Empiricists in Psychology. The former threw aside

(1) D. Mercier, *Psychologie*, Préface.
(2) Ibid

the old-fashioned, stilted concepts, conventions and points of view, and plunged afresh into the wild forests of nature. They plucked flowers without sighing over their « sweet fragrance » and harkened to streamlets without singing that they « purled ». The latter with kindred zeal cast off many lifeless abstractions and concepts that served to conceal the true nature of mental activities; they studied the concrete realisation of conation, intellection and attention, and sought by close observation of immediate consciousness to find out, the secrets that lay behind those abstract words. In fine, like the Romanticists, they realised the principle, pregnantly but clearly expressed by Maurice Blondel :

> Le dernier effort de l'art c'est de faire faire aux hommes ce qu'ils veulent, comme de leur faire connaître ce qu'ils savent.

The Standpoint of Experimental Will Psychology.

For most modern Psychologists the standpoint of Experimental Will Psychology is a *provisional* determinism (1). « Like every other science », writes Harald Höffding « Psychology is forced to be determinist, that is, to set out with the supposition that the Principle of Causality holds also with regard to Volitional life », They seek in previous psychical states the explanation of subsequent states. They are ready to say with Spencer « Psychological changes either conform to law or they do not. If they do not, this work in common with all works on the subject is sheer nonsense ; no science of Psychology is possible. »

This does not of course mean that the Experimental Psychologist must commit himself to Determinism as a Metaphysical Theory. Indeed it would be strange if it did. *Experimental Psychology not only does not*

(1) Néo-Scholastic psychologists see no objection to the assumining of such a standpoint (Vide, passim, Michotte et Prüm, *Le choix volontaire*).

furnish one scrap of evidence for Determinism, but it shows clearly and undeniably the impossibility of ever proving this theory by recourse to Psychology. It is not only impossible to show that all our acts are determined, but it is impossible to show that even one single motived act is determined.

We have stated, in contrasting the old method with the new, that modern psychologists take immediate experience as their starting point. They examine with care and precision all that can be found in consciousness during the process of the volitional act. They repeat, again and again the same act, under similar conditions ; and that, not for one or two, but for many subjects, so as to lessen the risk of non-observation or of mal-observation. Every feeling, image, sentiment, tendency, hesitation, association, inhibition, etc., is carefully noted. Still it is by no means easy to differentiate a voluntary from a non-voluntary act.

La volition, writes, M. Paulhan, n'est pas dans ses éléments, un phénomène différent des autres par sa nature et qui se distinguerait d'une émotion et d'une idée, comme l'émotion et l'idée se distinguent l'une de l'autre. La volition a toujours pour éléments des états intellectuels et des états affectifs, des idées, des images visuelles, auditives, motrices, etc., des émotions de peur ou de désir, des tendances diverses, elle n'a pas d'autres éléments. Son caractère propre est simplement d'être une synthèse nouvelle (1).

Though it is not yet sufficiently recognised, Scholastic Psychologists, have in recent years actively participated in the work of experiment and observation, carried on in Psychological Laboratories (2). They have too, more clearly, perhaps, than others, seen the advantage of associating themselves with modern scientific

(1) *La Volonté*, p. 3.

(2) There are many Laboratories in Catholic Colleges and Seminaries in America and on the continent.

research. That this is so, may be seen in the following words of Cardinal Mercier (1), where he announces the « policy » of Scholastic Psychologists.

Le meilleur service à rendre aux doctrines générales de la psychologie scolastique, c'est de les mettre en rapport avec les résultats acquis en biologie cellulaire, en histologie, en embryogénie ; de *simplifier* autant que possible les faits psychiques, à l'exemple des Associationnistes anglais ; de chercher à comprendre l'homme adulte par l'étude de la psychologie animale, et de la psychologie infantile, l'homme sain par l'observation minutieuse de certains états exceptionnels ou pathologiques qui accusent plus vivement tel ou tel caractère fruste du type normal ; de suivre les modifications particulières ou les variations de l'activité humaine chez les différentes races ou à des époques différentes de l'histoire, comme l'a fait Herbert Spencer ; de prendre sa place enfin dans le mouvement imprimé aux recherches psychologiques par l'école expérimentale allemande.

It cannot then be any longer maintained, that Scholastic Psychology is either hostile or indifferent to the progress of empirical or experimental psychology.

The Need of a Will Psychology.

We have seen, that by a natural evolution, the old Psychology has gradually made room for the new, just as the classicism of Pope, gave way before the nascent romanticism of Thompson, and later on, of Blake.

This new movement towards a Will Psychology has come most opportunely. The present age, ashamed of its weak, flippant spirit, fully conscious of its triviality and effeminacy compared with the sterner ages that have gone by, has suddenly grown clamorous for some tonic to revive its decaying virility.

It has, first of all, called for a method wherewith to fortify and build up the Will. As a response, such works as *L'Éducation de la Volonté* by Payot and *Le Gouvernement de Soi-méme* by Eymieu have been

(1) *Psychologie*, Préface.

published. Societies too, of a semi-spiritist, semi-psychical character are founded with a view to increase the « personal magnetism » and the « psychical force » of their members. Every means, wise or foolish, of winning back a shred of manliness and staunchness is tried. Wordsworth wrote for his fellow-countrymen :

« Milton ! thou shouldst be living at this hour.
England hath need of thee : she is a fen
Of stagnant waters : »

To-day, any little act of bravery or pluck is lauded to the skies, published. painted, sung, and decorated with medals. Every deed of heroism, true or imagined, that history can produce is brought forth, edited, written into novels and dramatised. Hero-worship and Will worship have become the mark and character of this mawkish age. Blondel has shown in his Philosophy *that thought is for action* ; that, *de facto*, knowledge is used in all the acts of animal life to help on activity. He has shown that when thought is used for thought, inevitable contradictions ensue. He might indeed have gone further, and pointed out that to-day *action is for action*, that thought and action, together, are subordinated to the development of action, or volition.

To-day we need a Psychology which will explain how half a hundred anarchists could, within a few hours, stir up a revolution and possess themselves of a huge city like Barcelona. We need to know the psychology of the crowd, and to examine the laws of terrorisation, in virtue of which Ferrer and his handful of minions held sway for three days over half a million people, burning their churches, schools, museums, and all they held most precious.

Then again, we need a Will Psychology which is capable of forming, at least to some broad principles

of morality, a youth for whom the name of Christ is unknown. Godless education is a *fact;* and, will, alas ! for years to come, be a fact in many countries. Religious instincts cannot help the French educators. They must make the most of Psychology. They ask for rules of Will training. We must try to satisfy, what, under the circumstances, is a legitimate demand. Indeed we may point out, that, curiously enough, modern psychology has become the defender of religion for the young.

Empêcher un adolescent qui en ressent le besoin naturel, d'accomplir normalement son évolution religieuse, sous prétexte que la religion n'est pas « vraie », c'est se conduire en dogmatiste qui décrète ce qui est vrai et ce qui est faux, ce qui doit être cru, non en psychologue impartial, qui *constate* ce qui répond *en fait* à un besoin de croyance, ni en pédagogue qui doit favoriser l'évolution naturelle de l'esprit, en la guidant s'il le faut, mais sans la contrecarrer (1).

But apart from such particular demands, there are general demands which spring from the mentality, the psychology, of the present generation, which must be satisfied. Figures, definite laws, precise proportions, exact observations, clear and definite descriptions and explanations, of all our psychical activities are called for. Litterateurs, Orators, Criminologists, Statisticians, Economists, Clergymen, Lawyers and Educators call for them. Here again, the old Psychology is unable to satisfy the demand.

In fine, while from one point of view modern Psychology only amplifies, illustrates, analyses, and renews truths, won long ago ; from another point of view that of method, it has all the credit of all that is definitely and surely known of psychical functioning.

(1) Claparède, *Psychologie de l'enfant*, p. 182.

CHAPTER I.

MODERN THEORIES OF THE WILL.

The Object of this Chapter.

The object we set before ourselves in this chapter, is not to give a history of the problem of motives and motivation, for as yet it has no history, but to expose briefly some important Theories of the Will, with a view to giving a general historical setting to the problem. Our standpoint will not be critical, but simply explanatory. During the course of this book, the divergencies existing between our views, and those of emotionalists like Wundt, or associationists like Ebbinghaus, will become sufficiently clear. It will be seen too that our method is not, like Ribot or Höffding, to trace genetically the origin of volitional activity, but rather like Wundt, « to find out how a volition proceeds by following it exactly as it is presented to us in immediate conscience ». The experiment we use is introspective experiment, believing as we do, with Külpe, that no other kind of experiment « can any more take the place of introspection in Psychology, than it can of observation in Physics » (1).

We propose then, to trace briefly, the growth of Will Theories and Will Problems, indicating some points of agreement between various systems, rather

(1) Külpe, *Outlines of Psychology*, p. 10 (Titchener).

than criticising them or pointing out their shortcomings (1). In doing this, we shall introduce the problem with which we are occupied in the present researches—that, namely, of motives and motivation.

The Will Theory of W. Wundt.

Wundt well remarks, that in experiments on the Will, we must limit ourselves to the observation of such processes as can be easily influenced by external means, namely, ' such as begin with external stimulations and end in external acts '. He regarded ordinary reaction experiments as volitional.

A volition of a simple or complex character is excited by an external sense stimulus, and then, after the occurrence of certain psychological processes, which serve in part as motives, the volition is brought to an end by motor reaction. (2)

Wundt's Emotional Theory of the Will is well known. When emotional processes pass into a sudden change in ideational and affective content, bringing the emotion to a sudden close, such changes in sensational and affective content, which are prepared for by an emotion, and bring about its sudden end, are Volitional Acts. The emotion together with its result is a Voluntary Process. The richer the ideational and affective contents of experience, the greater the variety of emotions and the wider the sphere of Volitions. Wundt distinguishes between primary and secondary

(1) With regard to our order of treatment, we deal first with views that are more or less theoretic, and next with those based directly on experiment. Respecting the theoretic views, it is by no means easy to find a satisfactory basis of classification. There are many cross-connexions rendering it impossible to classify either genetically or according to schools of thought. We have adopted the simpler plan of grouping according to general resemblance ; Wundt and Külpe, who held the apperceptive view ; James and Höffding, who attached great importance to imagery antecedent to the Will Act ; and Ebbinghaus and Ribot, whose preoccupations were distinctly physiological. Stout occupies a central position and seems to be connected with each of the different schools.

(2) *Outlines of Psychology* (trans. by Judd), p. 218.

Volitions, the former are indistinguishable from the emotional process, the latter have special characteristics.

In contrast to the first stages of Volition which cannot be clearly distinguished from an ordinary emotional process, the last stages of Volition are absolutely characteristic. They are accompanied by specific feelings. These are feelings of resolution and feelings of decision.

The relatively greater intensity of the feeling of decision, is probably due to its contrast with the preceding feeling of doubt which attends the wavering between different motives. (1)

For Wundt, it is not possible that a Volition should arise from pure intellectual considerations.

The assumption that a volition may arise from pure intellectual considerations, or that a decision may appear, which is opposed to the inclinations expressed in the feeling is a psychological contradiction in itself. It rests on the concept of a will which is transcendental and absolutely distinct from actual psychical volition. (2)

Wundt has greatly complicated his theory of Volition by identifying Volition with Apperception. Between active predetermined Apperception preceeded by its characteristic feeling of expectancy, and Volition, there is, he affirms, no essential difference. He bases his theory on a close analysis of reactions, in which Volition (the will to react) and Apperception (the intellectual assimilation of the excitant) seem so fused and united, that they may only be distinguished logically. A confirmation of his theory, he finds, in the close alliance of attention (explicit Apperception) and Volition.

(1) *Outlines of Psychology* (trans. by Judd), p. 210.
(2) *Ibid.*, p. 207.

In the old faculty Psychology « attention » and « will » were regarded as different though sometimes as related forces, but never as identical. The truth is that these two concepts relate to the same class of psychical process.

Will was not explained by its antecedents because the *central point* in the development, namely, the fact that so-called involuntary attention is only a simpler form of internal volition was entirely overlooked (1).

To conclude our review of Wund's theory of the Will we give one more quotation, in which, will clearly appear, the characteristics of the « Emotional Theory ». Our reason for treating his doctrine at such length, is, that it facilitates the understanding of many modern theories of the Will.

Thus volition proves to be a fundamental fact from which arise all those processes which are made up of feelings. In the process of apperception which is found through psychological analysis, to have all the characteristics of a voluntary act, we have the direct relation between the fundamental fact of volition and the ideational contents of experience. Volitional processes are furthermore recognised as being unitary processes and as being uniform in character in the midst of all the variations in their components. As a result there arises an immediate feeling of this unitary interconnection, in connection with the feeling of activity which accompanies all volition. This feeling of unity is then carried over to all conscious contents because of the relation mentioned, in which these conscious contents stand to volition. This feeling of the inter-connection of all psychical experiences of an individual is called the Ego. It is a feeling, not an idea, as it is often called. Like all feeling however, it is connected with certain sensations and ideas e. g. idea of one's own body (2).

O. Külpe.

For Oswald Külpe the Will is a subjective power or capacity to exercise a determining influence upon cons-

(1) *Outlines of Psychology* (trans. by Judd), p. 247.
(2) *Ibid.*, p. 249.

cious processes or movements of the body. This capacity need not itself be conscious, at the same time, there must be consciousness at least of the result of the activity. One phenomenon which is characteristic of the Will is the consciousness of the result, the end or aim of its activity. Külpe defines voluntary action as « *the internal or external activity of a subject which is conditioned and sustained by the conscious idea of its result* » (1). Internal and external voluntary actions differ simply in the special quality of the idea of their end, and of the processes which follow in its train. Memory and Introspection can discover but a small portion of the psychological conditions of a volition. All the motives cannot be known. Külpe regards the part played by the Will in the development of the idea of the Ego as most important.

The experience that we are not wholly at the mercy of external influence, and impressions, but can hold our own against them by choice and action i. e. the fact of Apperception or Will, is one of the most important incentives to the differentiation of the Ego and non-Ego (2).

Külpe sides with Wundt in his view of the Will.

We shall prefer to adopt Wundt's view which considers apperception and will as ultimately one and the same function.

For the characteristic energy which we attribute to will and the energy which makes it the supreme power in our conscious life, would seem to flow from one single source — apperception. All the peculiar attributes of apperception are also predicable of will; so that will, we may say, is only a special mode of apperception. The phenomena of will are thus seen to be referable partly to the laws of reproduction and partly to apperception (3).

(1) *Outlines of Psychology*, p. 447 (trans. by Titchener).
(2) *Ibid.*, p. 449.
(3) *Ibid.*, p. 450.

Külpe discusses at length the question of an elementary Will quality. « This elementary quality », he writes, « if it existed, could not possibly be the distinguishing characteristic of voluntary action... Voluntary action assuredly does not necessarily imply a feeling of internal initiative, the sensation of an effort of decision, or the intensity of desire or aspiration. » And he concludes finally « that the elementary will quality is nothing else than definite sensation qualities (1). »

W. James.

For James voluntary movements are secondary, not primary functions of the organism. Reflex, instinctive and emotional movements are all primary. Volition presupposes foresight, hence, no creature not endowed with divinatory power, can voluntarily perform an act, to be done for the first time. A supply of ideas of the various movements that are possible, left in the memory by the experience of their involuntary performance, is thus the first prerequisite of voluntary life. « The only direct outward effects of our will, are, he writes, bodily movements (2). » Kinaesthetic images, which precede, according to James, all external voluntary acts, are revived memory images of experienced acts.

Whether or no there be anything else in the mind at the moment we consciously will a certain act, a mental conception made up of memory images of these sensations, defining what special act it is, must be there (3).

This important sentence expresses James' *Classical Theory* of volition, which we shall see presently has been criticised and rejected by some modern psychologists.

(1) *Outlines of Psychology*, p. 266 (trans. by Titchener).
(2) *Principles of Psychology*, vol. II, c. 26.
(3) *Ibid*, p. 492.

In James' theory of the Will, ideo-motor action plays an important part. The idea of an act tends to bring about the act. If dwelt on, and attended to, an idea grows stronger and calls more loudly for realisation. Meanwhile, the idea tends to express itself outwardly by impulsive movements or quickened breathing. Finally, it realises itself, if still dwelt on.

Men have often jumped from towers, or plunged into chasms, from the gruesome force of the idea of the act, of which idea they could not rid themselves.

James' rejection of the Feeling of Innervation, which was defended and maintained by Helmholtz, Wundt, Bain, Mach and others, is regarded as an important event in Will Psychology.

All our ideas of movement, including those of the effort which it requires, as well as those of its direction, its extent, its strength and its velocity, are images of peripheral sensations, either remote or resident in the moving parts, or in the other parts which sympathetically move with them, and in consequence of the *diffusive wave*.

In fine, James writes that « we reach the heart of our inquiry into volition when we ask by what processes it is, that the thought of any given object comes to prevail stably in the mind,... the essential achievement of the Will, when it is most ' voluntary ', is to attend to a difficult object and hold it fast before the mind. »

This effort of attention is for James the essential phenomenon of the Will Indeed the only resistance which our Will can possibly experience is the resistance which some idea offers to being attended to. On the other hand the spontaneity, and force of Will spring from the idea which is attended to.

This is what we have seen in interest, in emotion, in common ideo-motor action, in hypnotic suggestion, in morbid impulsion, in

' voluntas invita ' — the impelling idea is simply the one which possesses the attention ! ! The steadfast occupancy of conscience is the prime condition of impulsive power ! ! It is still more obviously the prime condition of inhibitive power. (1)

We have referred to the so-called *Classical Will Theory* of James. This theory of the Kinaesthetic Image was proposed as a substitute for the old theory of the Feeling of Innervation, held by Wundt, Bain, Mach and others. It is clearly exposed in the following quotations from James' chapter on the Will :

The consciousness of muscular exertion, being impossible without movement effected somewhere, must be an afferent and not an *efferent* sensation ; a consequence and not an antecedent of the movement itself. An idea of the amount of muscular exertion requisite to perform a certain movement can consequently be nothing other than an *anticipatory image* of the movement's sensible effects.

There are two orders of Kinaesthetic impressions. The *remote* ones, made on the eye, ear or other member distant from that in action and the *resident* ones made in the moving parts themselves, muscles, joints etc. « An anticipatory image, then, of the sensorial consequences of a movement, plus (on certain occasions) the *fiat* that these consequences shall become actual, is the only psychological state which introspection lets us discern as the forerunner of our voluntary acts. »

Criticism of James' *Classical Theory.*

This theory was adopted by MacDougall, Münsterberg and Wundt, and opposed by Thorndike, and as we shall see by Woodworth and Burnett, who put it to the test of experiment.

(1) James was not the first to hold such a view. It was defended by Duns Scotus in the 13th century. Vide : Duns Scoti *Capitalia opera.* Havre (La Bonne Parole). James, often betrays, as he admits himself « a sneaking fondness for the old-fashioned soul. »

Prof. Burnett of Bowden College made experiments on back and forward movements of hand and leg, at *maximum rates*, and found that the existence of such images was impossible.

In the limited field under consideration, that of voluntary movements of the back and forward type, the images of neither *resident* sensations from the limbs, nor of *remote* sensations as from the eye, ear or skin, showing how the moving part, looks or sounds or feels, can furnish an adequate cue for the occurence of actual movements at a maximum rate. The protests of Thorndike and of others, against the classical theory of volition, seem in so far to be justified. (1)

Prof. Woodworth of Colombia University criticised James' theory with great vigour and ingenuity, « It is *natural* to suppose that if any idea is to have the power to produce a movement it should be the idea of the movement » (2). He then proceeds to quote from MacDougall and Wundt.

« The kind of idea that tends to issue most directly in action, writes MacDougall, is the idea of a movement, the Kinaesthetic image. » Wundt's formula is that voluntary movement considered as a phenomena of conscience « consists simply in the apperception of an idea of movement. »

Prof. Woodworth made experiments on thirteen subjects, making them perform various movements, as, opening the mouth, wagging the jaw, winking, opening and closing the eyes, manipulating scissors and forceps, etc. (3). They were told to observe what kind of imagery they had. Of 128 single introspections :

(1) Essay by C. Burnett, *Studies in Philosophy and Psychology*. New York, 1906.

(2) Same volume. Essay by Woodworth.

(3) Woodworth was not fortunate in the details of his method.

27 Kinaesthetic imagery,
27 Visual imagery,
17 Other kinds of imagery,
30 Only peripheral sensations,
27 Absence of all sensorial elements, whether external impressions or images.

Only in 10 % of cases was the imagery satisfactory. Nearly 50 % of cases showed no imagery.

The Kinaesthetic images were neither unequivocal nor accurate, often they pictured a slow movement, when a rapid one was about to result. « The kinaesthetic imagery of many and probably of nearly all persons is incapable of the minute gradations which those persons can introduce into their voluntary movements. » Prof. Woodworth affirms that most so called motor imagery is spurious, consisting in reality of peripherally excited sensations of movement.

The kinaesthetic image of the *present condition* of a member about to be moved is however very important. The kinaesthetic image of the future movement is of little importance.

James poses as the first pre-requisite of voluntary life « a supply of ideas of the various movements that are possible, left in the memory by experience », Woodworth corrects this, to « a knowledge of the various effects that can be produced. » In voluntary movement, not only is imagery a bye-product and epi-phenomenon, but also attention and intention appear unnecessary. The adjusting of the nervous system for the movement alone seems necessary.

Not only is the image inadequate but the very thought, the field of attention just prior in the movement, is often inadequate as a distinguishing mark of the movement. It would not serve to identify the act among all the acts that can be intended or executed.

The intention is not always present, and is seldom fully present in the field of attention at the moment just preceding the innervation of the movement.

Much of Woodworth's criticism of the *Classical theory* is just. However, his experiments were not sufficiently methodical or exact. It demands a very high power of introspection to speak with surety on questions of imagery and yet some of his subjects had not sufficient experience. Again exception might well be taken to such movements as winking and opening the mouth. They are hardly typical *voluntary* movements. Further evidence against James' Theory has come to light, owing to recent researches at Louvain. The intensely automatic character of a great part of mental activity, which « Will » researches discover, goes to show that imagery anticipatory to action, muscular or mental, is superfluous.

H. Höffding. The Theory of Höffding indeed, differs little from that of James. In spontaneous conation we have the first, in choice, the later type of voluntary activity.

La définition ordinaire et qui convient à tous les degrés est celle qui fait de la volonté tout le côté actif de la vie consciente (1).

Attention is fixed on a Kinaesthetic image and the act follows of itself.

Une fois que nous nous sommes préparés à exécuter un mouvement l'attention n'a qu'à se porter sur une image kinesthésique pour que le mouvement s'accomplisse avec facilité et rapidité. Cette préparation interne par laquelle la conscience adopte en quelque sorte ou fixe le mouvement tandis que nous nous identifions pleinement avec l'image kinesthésique et le sentiment qui lui correspond ne peut se décrire plus en détail.

Elle constitue l'élément fondamental de la conscience du mouvement volontaire, et on ne peut le connaître que par l'introspection,

(1) *Esquisse d'une Psychologie*, c. VII, p. 417.

comme aussi d'une manière générale le processus interne par lequel nous évoquons et fixons une image ou une suite de pensées. De même que dans le souvenir je m'identifie au moi qui autrefois a éprouvé tel phénomène, de même ce qui constitue la décision de l'acte volontaire c'est que je fixe ma pensée sur moi-même comme agissant d'une certaine manière dans un avenir plus ou moins rapproché !...

Tandis que le souvenir est une perception dirigée sur le passé et en grande partie passive, l'acte volontaire est une perception dirigée sur l'avenir et en grande partie active (1).

Höffding describes the Sentiment of Liberty as arising from our intimate adoption and assimilation of the act of decision or choice.

C'est en partie par cette intime adoption de la résolution volontaire, et du choix dans notre essence, qu'il faut expliquer le sentiment de liberté que nous avons en toute résolution forte. Nous sentons l'action comme une irradiation de notre propre être interne. Toutefois ce sentiment de liberté est dû aussi à l'état d'incertitude, d'arrêt et d'hésitation qui caractérise la délibération (2).

There is place to distinguish between the sentiments of unity, of resolution, and of action. The last marks perhaps a certain consciousness of liberty. The first, an intimate adoption of the choice or decision; and the second the disappearance of doubt, hesitation, and contrary motives.

Höffding has not sufficiently analysed the contents of conscience during a voluntary act, and seems to confound these three different types of sentiment into a so called « Sentiment of Liberty ».

H.Ebbinghaus

The Theory of Ebbinghaus, like that of Münsterberg is essentially associationist. In infants, he writes, there are instincts consisting of sensations of hunger, thirst, etc., mostly painful, and movements, crying,

(1) *Esquisse d'une Psychologie*, c. VII, p. 417-8.
(2) *Ibid.*, p. 430.

turning, etc. which are mostly reflex, and which tend to banish the pain. Such instinctive acts being repeated and being successful, an idea of the final result of such processes is formed in the infant's mind. He now begins to act with the idea of the pleasure, to be gained, or pain to be avoided, already in his mind and *foreseen*. In a word the representation is already conscious before the process directed towards its realisation is well begun.

The instinct now « foresees », and thereon the Will exists, for, writes Ebbinghaus, Will is nothing else than instinct endowed with prescience. The Will then consists of, 1. sensations peculiar to instinct, 2. sensations of pleasure and pain in movement, 3. prevision of the end : the sensations and representations are for Ebbinghaus the conceptual elements ; the instincts and simple voluntary acts are the genetic elements of psychical life. Now, the mind becomes gradually stored with representations of means, consequences, difficulties, favourable circumstances etc., which come into play when the mind foresees, and which act as motives.

Acts then which spring, not from external impressions, but from internal representations are called « free », for they are determined, not by anything without the soul but by the soul itself—they come from the very life of the soul itself.

This theory does not offer an explanation for certain psychical facts of Volition. 1. The sentiment of activity is not explained 2. the relative value of motives is not explained 3. distinction between doing an act with knowledge of the end and doing acts on account of, or to attain the end are not distinguished. Surely there is a difference between *deliberately* ' coasting ' down a

hill on a bicycle and ' coasting ' down because your chain and brakes are broken. In the first case we find in consciousness a feeling of purpose ; of personal initiative ; in fine, of spontaneous self-determined activity, but not so in the second case. We hear nothing of this sentiment of purpose in Ebbinghaus' analysis.

Ribot finds in the Will two distinct elements : T. Ribot.

L'état de conscience, le « je veux » qui constate une situation mais qui n'a par lui-même aucune efficacité ; et un mécanisme psycho-physiologique très complexe en qui seul réside le pouvoir d'agir ou d'empêcher (1).

Every conscious state tends to express itself by a movement or act. This active tendency or ideo-motor activity is strong, moderate, or weak. When it is moderate the voluntary act is reasonable. When the idea is abstract the tendence is very feeble, the Will is faint. Fixed ideas mean very intense volitions.

L'activité volontaire nous apparaît comme un moment dans cette évolution ascendante qui va du réflexe simple, dont la tendance au mouvement est irrésistible, à l'idée abstraite où la tendance à l'acte est à son minimum (2).

Ribot's point of view is physiological (3), and for this reason, he regards the Will's inhibitive power, as essentially distinct from its ordinary choice or decision power.

Pour la psychologie fondée sur la seule observation intérieure cette distinction entre permettre et empêcher a peu d'importance ; mais pour la psychologie qui demande au mécanisme physiologique quelqu' éclaircissement sur les opérations de l'esprit — et qui tient l'action réflexe pour le type de toute activité — elle est capitale (4).

(1) *Les maladies de la volonté*, p. 3.
(2) *Ibid.*, p. 12.
(3) Ce n'est pas l'état de conscience comme tel mais bien l'état physiologique correspondant qui se transforme en un acte.
(4) *Les maladies de la volonté*, p. 13.

For Ribot the Will is the « Me » in as much as it reacts to sensations or impressions — it is a « personal reaction ; » it only partly betrays itself under the form of this or that predominant motive.

Le motif prépondérant n'est qu'une portion de la cause et toujours la plus faible, quoique la plus visible ; et il n'a d'efficacité qu'autant qu'il est choisi c'est-à-dire qu'il entre en titre de partie intégrante dans la somme des états qui constituent le moi (3).

In fine Ribot attaches very little importance to the introspective data of Volition. As his point of view is radical it is well to quote the whole passage.

La volition que les psychologues intérieurs ont si souvent observée, analysée et commentée n'est, donc pour nous qu'un simple état de conscience. Elle n'est qu'un effet de ce travail psycho-physiologique, tant de fois décrit dont une partie seulement entre dans la conscience sous la forme d'une délibération. De plus elle n'est la cause de rien. Les actes et mouvements qui la suivent résultent directement des tendances, sentiments, images et idées qui ont abouti à se coordonner sous la forme d'un choix. C'est de ce groupe que vient toute l'efficacité (4).

His position is indefensible both psychologically and physiologically. Psychologically, we have data of conscience e. g. the sentiment of action, which would be meaningless and superfluous, in Ribot's theory ; physiologically, there is not a shred of authenticated fact with regard to the physiological correlatives of volition. Absolutely nothing is yet known of cell activity during choice or decision.

Bain, Brentano, Stout.

There are for Bain two fundamental component elements in the Will. « First, the existence of a spontaneous tendency to execute movements independent of the stimulus of sensations or feelings; and, secondly,

(1) *Les maladies de la volonté*, p. 32.
(2) *Ibid.*, p. 179.

the link between a present action and a present feeling, whereby the one comes under the control of the other (1). » Spontaneity precedes sensation, and is at the outset independent of any stimulus from without; and that activity is a more intimate and inseparable property of our constitution than any of our sensations, and, in fact, enters as a component part into every one of the senses, giving them the character of compounds, while itself is a simple and elementary property. Bain's theory of Motives is at the root of his description of the growth of voluntary power. « The motives to voluntary action, he writes, are unquestionably summed up in pleasure and pain (2)» and again

> The immediate operation of pleasure and pain upon the Will receives decisive confirmation when we study the lowest forms of life, and the initial stages of the highest forms. The processes of the understanding in regard to ideas, are in these instances necessarily inchoate or imperfect, and their imperfection would be felt in crippling the voluntary activity, supposing it depended on ideas. Yet there is no sign of such crippling, indeed the conservation of life would be precarious if the action of the will were not promptly shown under present pleasure or pain, and more especially pain (3).

It is interesting to note that James by no means allowed so exclusive a role to pleasure-pain. Objects and thoughts of objects start our actions, but pleasure and pain which action brings, modify its course and regulate it. And later the thoughts of pleasure and pain acquire impulsive and inhibitive power. So widespread and searching is the influence of pleasure — pain upon our activities that a premature philosophy has decided that these are the only spurs to action.

(1) *The Emotions and the Will*, p. 327.
(2) *Notes on Volition.* Mind. April, 1891.
(3) *Ibid.*

To conclude, I am far from denying the exceeding prominence and importance of the part which pleasure and pain (both felt and represented) play in the motivation of our conduct, but I must insist that it is no exclusive part and that, conditionally with these mental objects, innumerable others have an exactly similar impulsive and inhibitive power (1).

Brentano derived conation from *feeling*. « There is a germ of conation in the longing after an object; in hope this germ begins to unfold; the desire to procure the object and the courage to make the attempt are progressive stages in its development (2). »

Mr. Stout rightly points out the ambiguity of the term *feeling* and shows that conation is essentially distinct from pleasant and painful feeling, just as attention is distinct from desire or aversion (3). Conation and attention agree in having a dynamic aspect, and in the case of both, this dynamic aspect seems to belong to their intrinsic nature as modes of conscience.

Attention produces changes in the flow of ideas, desire and aversion tend to produce bodily action and when they culminate in voluntary determination, bodily action takes place as a consequence. Attention tends too, to produce bodily movement, as thought-readers show. Simple attentiveness passes into what is recognized as conation by insensible gradations, and is never absolutely separable from it. The striving aspect of conscience is prominent in proportion as the idea of the object is evasive and difficult to detain in the degree of distinctness required for its pleasure giving effectiveness.

Mr. Stout's theory is little different from that of

(1) *Principles of Psychology*. Vol. II, p. 558.
(2) Quoted by Mr Stout in *Analytic Psychology*, Vol. II. c. VI.
(3) *Ibid*.

Wundt, and Külpe. « Wundt has shown that Will and attention are ultimately related and has employed the term apperception to denote their common constitutent (1). »

Together with Höffding, Külpe and Ribot, Mr. Stout teaches that the big factor in choice and decision is hidden away in the personal reaction of the *me*.

The recognised reasons for a decision can never constitute the entire cause of a decision. Behind them there always lies *the self as a whole* and what this involves can never be completely analysed or stated in the form of definite reasons or special motives.

We add one more quotation from Mr Stout, which brings out a point of view discovered by Ach in his experiments, that, in true decisions we find in conscience the note « I will (wish) really » « je veux vraiement. » Mr Stout writes.

The mental attitude of voluntary decision is distinguished and characterised by the dependance of the act on the belief that we are going to perform it. The predominance of the idea of the end must be of such a kind as to involve the mental affirmation that our action will be directed to its attainment. The mere vividness of the idea is of comparatively little significance (2).

This last remark of Mr Stout, supported as it is by experiments of Ach and Prüm, ought to some extent, to modify prevailing theories of Ideo-motor force, which were received too readily from James, Ribot and others.

An interesting 'rapprochement' between Höffding and Stout, might here be made. Stout affirms more than once, that,

The general point of view in Deliberation may be described as follows. A certain line of action being suggested as possible I

(1) Külpe, *Outlines of Psychology*, p. 215.
(2) *Analytic Psychology*. Vol. II, p. 132.

contemplate myself as I shall be if put it into execution, so as to make it part of my actual life-history etc. (1)

Höffding too refers frequently to the same point :

De même que dans le souvenir, je m'identifie au moi qui autrefois a éprouvé tel phénomène, de même ce qui constitue la décision de l'acte volontaire c'est que je fixe ma pensée sur moi-même comme agissant d'une certaine manière dans un avenir plus ou moins rapproché (2).

This prevision of the effects on *self* of the supposed-act, is likewise a point of agreement, between the two psychologists mentioned above, and Külpe. Külpe agrees too, with Stout, Höffding and Ribot that conscious motives represent but imperfectly the true cause of the Will-Act.

We regard, he writes, the activity of the Will, as the expression of the totality of previous experiences, in all the degrees of authority and consequence which they have acquired in accordance with universal psychical laws, and with all the weight of influence which distinguishes the old and proved from the new and strange. It is for the most part, but a small and fragmentary measure of this which finds its way into consciousness : the reserve of energy which gives efficacy to the Will lies below the conscious limen (3).

Will Theories of Experimental Psychologists.

So far, we have considered the Will Theoresi of Psychologists *experimental* in a wide sense of the term. It remains for us to refer briefly to the Will Theories of Psychologists who have actually set themselves, by experiment, to solve Will Problems.

Reaction-Experiments were first tried. Wundt, who experimented on the Will thus far, maintained that Reaction Experiments were really Will-Experiments. Treating the question from the point of view

(1) *Manual of Psychology*, p. 604.
(2) *Esquisse d'une Psychologie*, p. 417.
(3) *Outlines of Psychology*, p. 215 (Titchener).

of his theory of the identity of Apperception and Will, he saw, in the ordinary Reaction, three stages 1. Perception 2. Apperception 3. Impulsive Apperception. The latter stage was for him Volitional.

This view of Wundt was strongly criticised. Külpe wrote

> It follows from the extraordinary power of practice to modify our actions that choice-reactions in the strict sense of the word, do not occur beyond the first beginnings of experimentation, and that the reaction-times, taken at different stages of practice are less comparable here, than in any other department of reaction-work (1).

Ach, in 1905, by systematic researches on Reaction-Times, totally disproved Wundt's contentions. He showed that Wundt's three-stage process, was a mere logical schema, unjustifed by facts. He formulated a law of « determining tendencies » directed towards the refutation of the Will-Theories of Associationists, like Münsterberg and Ebbinghaus.

By « determining tendencies » Ach understood the influence caused by the instruction given to a subject in a Reaction-Experiment, whereby, the subject, when the proper occasion arose would, even unconsciously, obey the *task* given him. When, say, the colour '*red*' appeared, the subject would, automatically, and without any conscious act of Will, react with, say, his left-hand, had he been so *instructed* before the experiment.

Donders.

Among the first to try choice-reactions was Donders. He gave his subjects two series of experiments : Discrimination Reactions, and Choice Reactions. In the first series, the subjects had the task e. g. of always reacting with the same hand, though now red, and now blue excitants occurred. The subject simply ' discri-

(1) Külpe, *Outlines of Psychology*, p. 414 (Titchener).

mitated' the colour and reacted. In the second series, the subjects had to « choose »; they had to react with the right hand for red, and the left hand for blue Donders now estimated the mean-times for the two series; substracted; and gave as Reaction-Time for the interference of the Will in the second series, the difference between the two times (1).

Dürr. Loosky (2) and Dewey (3), Dürr (4) experimented in the same direction. They introduced, however, much novelty into the method outlined by Wundt. They used 1. introspections 2. various, complex, external movements calculated to call for voluntary effort. Dürr, for instance, made his subjects pull hair out of their moustaches, sing, whistle, or sit on the ground. As a result, one would suspect, 1. that the subjects would be disconcerted 2. that the Reaction-Times would be so long, that exact introspection would be impossible.

In recent, years, many minor researches have been carried on in America. While in Europe, Dr Narziss Ach (5), and Drs Michotte and Prüm of Louvain have made the first important contributions to experimental Will Psychology.

Dr Ach. Dr Ach, contemporaneously with the Louvain researches, investigated the phenomenology of the univocal Will Act : that is of the decision taking the following form « I will do X when Y appears ».

Drs Michotte and Prüm (6) studied the bilateral Will Act. « I will do X *or* Z when Y appears ». Here

(1) Donders method rested on the false supposition that the only *varying element* in the conditions of the experiments was the « choosing ».

(2) *Eine Willenstheorie.*

(3) *The Psychology of Effort.*

(4) *Die Lehre von der Aufmerksamkeit.*

(5) *Ueber der Willensakt und das Temperament.* 1910.

(6) Michotte and Prüm, *Le Choix volontaire.* 1910.

there was a *real* choice to be made — that between X and Z. Here too, the Will-Act. was made *during* the experiment — on the appearance of the excitant Y, while in Ach's experiments the Will-Act *preceded* the appearance of the excitant — it preceded the experiment.

The method of Dr Ach was as follows :

The subjects, by way of preparation, memorised series of *non-riming syllables*, until strong associations were formed. Next they received the instruction « to find a *riming* syllable for the syllable that would appear ». The card-presenting apparatus (kartenwechsler) then, (after due signals etc) exhibited one of the syllables of the memorised series. Naturally the following member of the series tended to present itself as a result of the formed associations. However, the subject, had in accordance with the instruction to find a rime and to react. Naturally the effort required was somewhat violent.

Dr Ach créait par avance, writes M. Michotte, une influence destinée à contrecarrer la décision, et il cherchait ensuite par une intervention volontaire à lutter contre cette influence. La mesure de la force de volonté est donnée par la grandeur de l'influence contre laquelle il est possible de lutter. L'influence créée était une influence associative, des tendances à la production formées par un certain nombre de répétitions et dans l'expérience de volonté même le sujet devait, par exemple, trouver une syllabe qui rimait avec celle donnée comme excitant et qui était liée à une troisième différente par des tendances à la reproduction plus ou moins fortes provenant de l'exercice de mémoire. Dans ce cas c'était le nombre des répétitions qui mesurait indirectement la force de la volonté. L'auteur a obtenu par ce moyen des actes de volonté très énergiques qu'il a pu analyser. Ce sont donc des actes univoques. Ils portent sur une seule alternative, ce que le sujet doit faire d'après l'instruction. Théoriquement on peut toujours voir là un acte de choix entre agir et ne pas agir, mais c'est là de fait une distinction purement dia-

lectique, la question est en effet de savoir si le sujet envisageait oui ou non les deux alternatives d'agir et de ne pas agir ; en fait, ce n'est pas le cas.

Ach distinguished four factors A. the subjective B. the objective C. the actual D. the conscience of effort. While D. was only found in energetic decisions ; the subjective factor A, feelings of strain in the head, forehead, and organs called into play, were felt in almost all decisions. Ach well analysed these feelings, although they had already been treated of by Höffding, Ribot and others. The objective factor B, was the representation of the end in view. It was present, either « intentionally », or as a verbal image, or figuratively. The actual factor C. was the « *Je veux vraiment* ; » a personal identification of the decision with the self ; an activity, felt and lived and embraced. The « *Je veux vraiment* » excluded other possibilities ; it is a simple, unanalysable, concrete fact of conscience.

Dr Prüm. Prüm's method was perhaps, better planned and more searching. He offered to his subject two alternatives — one of which « was to be chosen for a serious reason ». Two numbers were presented to the subject. They might be added or subtracted. The subject then, discussed the pros and cons, and reacted. Before the apparition of the card with the figures, he had been *instructed* « that two numbers would appear, that he should add or subtract, and that for serious reasons. » Full introspections were noted down and reaction times carefully taken. For the subject, the movement of reaction gave physical expression to his voluntary act.

Nous avons pu constater, writes Dr Prüm, que le mouvement prenait spontanément la valeur symbolique d'une réalisation.

Comme si le mouvement exécutait l'alternative, comme si l'on commandait une machine qui réalisait ou bien comme si le mouvement communiquait un ordre à une autre personne.

In Prüm's experiments the act of choice was made *during the reaction*, after a deliberation, and discussion of motives. In Ach's experiments the Will act was made *before the Excitant appeared.* For Ach there was no discussion of motives; this formed a most fertile and interesting element in Prüm's researches. There were three stages A, B, and C in Dr Prüm's experiments.

A. — PRIMARY STAGE.

Feelings of surprise, and feelings of pleasure or pain on perceiving the excitant.
Discussion of Motives.
Presence of Alternatives.
(After motivation there is always a halt.)

B. — INTERMEDIATE STAGE.

Subjective Factor — Feelings of doubt and expectation, and sensations of tension. Muscular tension is strong with untrained subjects, or when motives are strongly *negative.*

Objective Factor — Presence of Alternatives and Notions of Motivation.

C. — FINAL STAGE.

Subjective Factor — Feelings of Doubt give place to a feeling of Certitude ; feelings of expectation disappear ; sensation of tension becomes one of relaxation.

Objective Factor — The chosen alternative is designated by a judgment « ce sera ça, » or the prononciation of a word, or a « conscious turning towards » ; also the chosen alternative is fixed, and some notions on motivation remain.

Dr Prüm was thus able to trace a very interesting development of the objective and subjective elements in choice-acts. He differentiated well the three stages, primary, intermediate and final, and analysed very delicately the various factors in play in choices.

To signalise two points of especial interest, we may mention :

A. the psychological differentiation of Decision and Consent,

B. the analysis of the Consciousness of Action.

A. Decision has a content, « direction », « designation » with an accompanying « consciousness of action ». Consent has no such content. It is a mere « laissez faire », an internal « soit ». « Dans les cas les plus nets la décision comprend une indication, sous une forme ou l'autre, tandis que ce facteur est absent au consentement qui ne comprend qu'un déclic, c'est la conscience de lâcher tout. » Decision is found, when the choice is made *at once*, after the motivation, or when it is made after a long pause. Consent is found, when the favoured alternative reappears alone, immediately before the choice, or when the thought comes *c'est ceci qu'il faut choisir* at the moment of the choice. The character of the choice is in immediate relation with the nature of the motivation.

B. With regard to the Consciousness of Action much controversy, and much experimentation has been devoted to this point. James wrote of this sentiment, or feeling. « The existence of the feeling of effort as a phenomenal fact in our conscience cannot of course be doubted or denied. » Külpe describes it as « an urgency from within outward, a mental strain, an activity of the self ». Thanks to this « feeling of liberty » writes Höffding « nous sentons l'acte comme

une irradiation de notre propre être intime. » Wundt describes it with admirable skill.

At the moment when the volitional act begins, the feeling of resolution gives place to the specific feeling of activity which has its sensational substratum, in the case of external volitional acts, in the sensations of tension accompanying the Will.

As a total feeling, this feeling of activity, according to Wundt, is a rising and falling temporal process, extending through the whole act and finally passing into widely different feelings such as those of fulfilment, satisfaction or disappointment, or into feelings and emotions connected with the specific result of the act.

We must begin by distinguishing the consciousness of action from *the feeling of strain or tension* wich is located in the organ used during a muscular movement, or even in the skin of the forehead or whole head.

Lorsque l'attention est fortement tendue, les muscles du reste du corps sont plus ou moins intéressés, la marche s'arrête, la respiration est retenue, le regard devient fixe et l'état général peut, par suite de la forte concentration, donner l'expression d'une extase (1).

Indeed, Mosso and Carpentier affirm that when we make a voluntary effort to analyse a mental image, blood flows to the head and the image in consequence grows clearer.

The Feeling of Activity or tension or effort was confounded with the consciousness of action by Wundt, James and others. Even in Ach's experiments the same confusion remains. It is a sensible, an organic feeling, passing into a feeling of relaxation (as described by Wundt) during the voluntary process. It is not

(1) Höffding. *Esquisse d'une Psychologie*, p. 415.

found in every voluntary act; it is found in dynamic non-voluntary states ; it coincides with the muscular tension of imperfectly adapted subjects, and of experiments where negative motivation is strong. It sometimes persists even after the decision, and, at times, in eminently voluntary decisions it is absent.

The *Consciousness of Action* on the other hand characterises truly voluntary acts. It takes the form of a personal, intimate, turning, *towards* one of the alternatives, that is, of *an active designation*.

Dr Prüm describes it clearly :

La conscience de l'action donne précisément le cachet de volontaire. Elle est fusionnée avec ces facteurs que nous avons cités, de façon à constituer un phénomène unique. Elle consiste en ceci que le sujet a non seulement conscience d'une direction mais qu'il est conscient de *se tourner vers* ; non seulement d'une désignation, mais *de désigner* ; non seulement d'avoir une représentation verbale mais de dire le mot. Ce phénomène s'oppose absolument au cours mécanique de la conscience et c'est ce qui est très remarquable, on ne peut pas dire « j'ai eu une désignation, » comme on peut dire « j'ai eu telle ou telle représentation » ou « il y a eu une désignation » mais « j'ai désigné », « j'ai eu conscience de désigner. » Cela ne peut s'exprimer que *par l'infinitif*.

This Consciousness of Action is opposed to that of passivity or neutrality. It means that the *me* is fully identified with the voluntariness of the act. Again, « *Le caractère du volontaire provient de la conscience de l'action et non de la réunion des autres facteurs comme dans les théories de Wundt, Ebbinghaus, Münsterberg, etc.* » We may indeed, basing ourselves on Prüm's results, affirm that this Consciousness of Action is in some sort the phenomenal form of the « *Me* ».

CHAPTER II.

THE OBJECT AND METHOD OF THE PRESENT RESEARCH.

Object of the Present Research.

We have seen that the recent experimental researches of Ach, Michotte and Prüm aimed at an analysis of the phenomena which accompany voluntary decision and voluntary choice. These researches have, incidentally, supplied interesting data to the Psychology of Motive.

In his turn the writer of these pages has taken up directly the investigation of motives and motivation, and has examined the problems of the strengthening of motives, the measurement of motive force, and the evolution of motivation. He has also traced as far as possible, the various influences of hedonism, hesitation and automatism on motivation, and has devoted the last chapter to the study of character from the point of view of motivation.

The Importance of the Psychology of Motive.

It is hardly necessary to dwell on the great practical importance of the Psychology of Motive. In every sphere of life the problem of motives is in evidence. The man who would be master of the art of strengthening motives, and of measuring their force, would indeed, be powerful. The teacher who could inculcate habits of serious motivation would be the best trainer of character. Indeed the problem of character-formation is reducible to that of motivation.

To choose capriciously is to spoil one's character. To choose without appeal to a clear and definite scale of values, to choose in a hesitating, indecisive manner, or to allow oneself to repine over past choices, is to run counter to good habits of motivation — and true strength of character.

Again the question of motive-force is important in every walk of life. Can I get so and so to do this, means, can I propose to him a suitable, and sufficiently strong motive? If the motive already proposed be too weak, how can it be strengthened? What circumstances tend to strengthen it? And, suppose there is question of a pupil, is it advisable to propose to him hedonic motives. What effect will they have on his character? Will it be injurious to him to offer such and such a reward, or to threaten such and such a punishment? Again, if it be considered permissible to propose a hedonic motive, of what force is it to be. What economy of motive-force is to be made?

Suppose too, the pupil in question be of a hesitating, indecisive character, what steps are to be taken to teach him to make his choices in a resolute, decided way. How may hesitation be cured?

General Method of Research.

These are very practical questions, the answers to which, call for a very considerable knowledge of the Psychology of Motives and Motivation.

The first requirement, for the scientific investigation of motives is to have a great number of records of choices, giving accurate accounts of the motives, conditions and phenomena of the choices. Such a requirement is difficult to satisfy. It is true that from time to time, in newspapers or letters, we find good descriptions of the circumstances of some choice or other. But such records are few in number, and generally

wanting in precision. It is no easy task to give a good introspection, and as Wundt writes

> It is impossible to find out how a volition proceeds, in any other way, than by following it exactly as it is presented to us in immediate experience.

Again, such records of motives and choices as might come to hand, would deal with cases, differing so widely in circumstances and conditions that, laws based on analyses of them, would be of little scientific value.

It is then, by force of necessity, that Will Psychologists must prepare and plan out in their laboratories precise sets of choices, to be made by Subjects, well trained in Psychology, and accustomed to Introspections. In this manner records of choices, of sufficient number, and of good quality can be obtained. Such records are much more valuable from a scientific point of view, than the occasional records found in newspapers or letters.

> The observation of volitional processes, writes Wundt, which come into experience by chance, is an inadequate and easily misleading method for establishing the actual facts of the case. Wherever internal or external volitional acts are performed in meeting either the theoretical or pratical demands of life, our interest is too much taken up in the action itself, to allow us at the same time to observe with exactness the psychological processes which are going on. (1)

Our method, in a word, was to propose to our Subjects, who were well-trained students of Psychology, certain definite choices, twenty-eight in all, in a carefully planned order. The choices were presented under identical conditions. Full introspections were

(1) *Outlines of Psychology*, p. 215 (Judd).

made after each choice. Time-durations were marked by chronoscopes. The precautions prescribed by the best exponents of the Psychical method were observed. There was absolutely no communication between the Subjects, with respect to the experiments. The Subjects too, as far as was possible, were kept in the datk as to the object of the experiments. They had not the slightest clue as to detailed points of enquiry,

The Subjects, to whom we shall refer in the course of this work as S^1, S^2, S^3, etc. (1) were the following :

Prof. A. Michotte (Dr Phil.) Louvain Univ.
F. Fransen (Dr Med.) Louvain Univ.
J. Vance (B. A.) Cambridge Univ.
A. Centner (Dr Phil.) Louvain Univ.
The present writer.

The experiments were all conducted in the Psychological Laboratory of the Superior Institute of Philosophy at Louvain University, which is in charge of Prof. Michotte.

The Method in Detail Technique.

The material of the alternatives to be proposed in the choice experiments had first to be decided on. After consideration, eight liquids, carefully graduated from the point of view of agreeableness were chosen. The liquids were colourless, so as to be indistinguishable when presented in glasses. They were maintained constantly at the same degree of strength. Some were very agreeable, some indifferent, some extremely unpleasant. These eight liquids were given « nonsense » names of a kind unlikely to be associated with other words of French, English, German or Flemish, the languages spoken by the Subjects. *The liquids and the names were as follows :*

(1) The order of the letters S^1, S^2, S^3 etc. is not to be taken as corresponding to that of the names.

Bef...	Sulphuric Acid.	1 gr.	1000	H^2O.
Choux...	Carbonate of Soda	10 gr.	»	»
Jor...	Ethyl. Alcohol	50 gr.	»	»
Kum...	Saccharose	50 gr.	»	»
Laix...	Salicylate of Soda	50 gr.	»	»
Vaw...	Sodium chloride	50 gr.	»	»

Ziv... Essence of Anis 3-5 centigrams. Alcohol 20 c. c. Syrup 304 c. c. H^2O 676 c. c. a trace of Saponin.

Tauk... Essence of bitter Orange Peel, 6 centigrams. Alcohol 6 c. c. Symp 175 c. c. H^2O 819 c. c. A trace of Saponin.

The Different Stages of the Method.

For brevity we shall, in future, refer to these liquids, by the first letter of the nonsense name. This Z means Ziv, B, Bef etc. Again Z-B means the choice between Ziv and Bef.

There were three stages in our method. 1. The tastes, just now described, were learned, associations between the names and the tastes being formed. 2. The strength of these associations was tested by means of the Recognition Experiments. 3. The choice Experiments began.

a The Forming of Associations.

The first stage consisted in this, that the Subjects tasted the eight substances, thrice every morning, and thrice every evening, repeating aloud the names of the substances before tasting them. These repetitions lasted from Nov. 7th to Nov. 24th (1910). Each substance was tasted about eighty times by each Subject. The liquids and their names were thus perfectly well learned; strong associations being formed between the tastes and the names. The tasting of the substances continued until the end of the Recognition Experiments.

b The Recognition Experiments.

When the tasting repetitions had lasted a week, (each Subject having tasted each substance thirty times) the second stage of the experiments began. These

experiments aimed atm easuring the Reaction-Times of the associations formed. The method was as follows. The nonsense names Z, T, etc. were printed on cards and presented to the Subjects, as in ordinary Association Experiments, by Ach's card-changing machine. The *instruction* given to the Subjects was :

« *React when you know what it is* ».

After each experiment the Subject's introspection was carefully written down. These introspections proved to be of great utility subsequently in tracing motive-evolution, and, when put in contrast with the introspections of the choice-experiments, they served to bring to light the phenomena peculiar to volitions.

We give two examples of these introspections, taken at hasard.

1. S^1. The word *Tauk* appeared. *Reaction Time* 790 sigma

Immediately on reading the word it was identified. I can hardly say how. I had immediately the same impression as when I drink it — an impression of softness with a feeling of pleasure. Also I had a vague image of something green. The taste is associated with an incident that happened twenty years ago.

2. S^2. The word *Tauk* appeared. *Reaction Time* 633 sigma

Had a feeling of pleasure on seeing the word. The word pleases me. I pronounced the word *Tauk* in an affectionate manner. The expression « very good » came to me, but no reproduction of taste. I understood that the taste was very good.

The number of Recognition-Experiments, with *the mean reaction-times* for each Subject was as follows :

		Mean Reaction-Time
S^1	71 experiments	641 sigma
S^2	81 »	691 »
S^3	41 »	588 »
S^4	67 »	556 »

The Recognition Experiments served 1. to strengthen the Associations already formed between the names and the tastes 2. to make the Reaction-Times of Reproduction regular (when they became regular, for each Subject the series was brought to a close) 3. to accustom the Subjects to the technique of the choice-experiments. The Recognition Experiments, besides being useful in themselves, were a excellent immediate preparation for the choice-experiments.

When the Recognition Reaction-Times grew regular the series was brought to a close, and each Subject then wrote down from memory the eight tastes, in their order of hedonic value for him. The lists were as follows—

S^1	S^2	S^3	S^4
Z	K	Z	Z
T	Z	V	T
K	T	K	B
J	V	L	K
B	B	B	J
V	J	T	V
L	L	J	L
C	C	C	C

It is interesting to notice the considerable differences, due to subjective likings and dislikes. C alone holds the same place in the four lists. Z, B and L, hold the same place in three lists, T, K and V hold the same place in two lists, while J, which was regarded as ' mysterious ', ' unknown ', and ' enigmatic ', in spite of all the tasting repetitions, holds a different place in each of the four lists.

The Subjects were now in possession of definite, well known scales of values. All four as we have seen, put C down as *the worst of all*, while for three subjects Z was *best of all*, B fifth best, and L the worst but one.

c
The Choice Experiments.

The names were now printed on cards in their twenty-eight combinations. These twenty-eight cards were divided into four sets of seven—not more than seven choices being made the same day. The cards were so arranged that the same word never reappeared on two successive cards. At each sitting one set of seven experiments was done, and since for each Subject there were four sittings per week, each Subject completed the whole set of twenty-eight choices every week. The series was recommenced the following week in a different order.

The experiments were conducted in a small room off the main apartment of the Laboratory. The Subject was seated at a small table with his finger pressing the reaction-key. Just before him, on a specially constructed stand, were placed two glasses containing two of the substances, which as we have said, were colourless.

The stand which was constructed by Prof. Michotte consisted of a piece of wood on which two small wooden plates were hinged. The plates, on which the glasses were placed, rested on springs and were provided with electric contacts, so arranged, that when the glasses rested on them an electric circuit, connected with the Vernier chronoscope was closed, and when a glass was raised by the Subject, this circuit was broken.

On a shelf, a little higher than this stand, Ach's card-changer was so placed, that when the cards with the printed names e. g. Z — B, appeared, the names would be seen, just over the glasses to which they corresponded. The experiments were all conducted by electric light, the blinds being drawn, so as to maintain identical conditions. Two electric lamps were used one over the head of the Subject, the other close to Ach's

card-changer, throwing a bright light on the aperture so that the card could be seen at once. There was a minimum of noise as the Laboratory is fortunately situated on the top story of a high building in a quiet part of the city, and as the Hipp chronoscope, used during the experiments was at a considerable distance, in the far corner of another room.

The Course of the Experiment.

The Subject seated himself at the small table just described, with his hand on the reaction-button. The Experimenter then gave the following ' instruction '.

« *Two words will appear corresponding to the substances in the two glasses. You are to choose between these substances and to drink at once the liquid which you have chosen* (1) ».

The Experimenter now retired into an adjacent apartment, pressed a button which gave a signal to the Subject that the card was about to appear. Next, 1 1/2" (*approximately*) after, he pressed another button and the card appeared.

Meanwhile the Subject, on hearing the signal, concentrated his attention, recalling perhaps at the same time the task that was given him. On seeing the card appear he read it, weighed, more or less the merits of the alternatives proposed, reacted, and putting out his hand took up and drank the chosen substance.

The Experimenter now reentered and wrote down at the dictation of the Subject, all that had passed in the Subject's mind during the choice. These « introspections » carefully dated and numbered, were the material to be analysed later on, with a view to determining the laws of motives.

It will be noticed that there were two periods in the choice act.

(1) This ' instruction ' was repeated before every experiment in the following shortened form « Choose a glass and drink it. »

A. The period between the appearance of the card (the excitant) and the reaction.

B. The period between the reaction and the realisation of the choice by taking up the glass to drink.

These two periods were measured by chronoscopes A. by the Hipp and B. by the Vernier chronoscope. The Hipp chronoscope commenced to mark time when the card appeared, and was stopped by the reaction; the same reaction started the Vernier chronoscope by means of Ewalds' Key. The raising of the glass from the stand by the Subject released a spring and cut an electric current which enabled the Vernier to mark the time B. by freeing its second pendulum.

During the experiments the same conditions as to time, place, and all external circumstances were maintained. The present writer was always personally present to take down the introspections and to conduct the experiments.

Every thing that could trouble or interfere with the faithful reproduction of the immediate data of conscience was avoided. Practically no questions were asked, during the course of the experiments to avoid their possible interference, with the Subject's introspections by suggesting. After the last series was finished, and all the experiments were over, a *questionaire* was given to the Subjects dealing with their interpretation of the instruction, and their interpretation of the word 'motive'.

The four Stages of the Choice Act.

In the Choice Experiments, just explained, there were four stages, about each of which we must say a few words.

A. The Perception of the Excitant (the card).

B. The Motivation.

C. The Choice.

D. The Realisation of the Choice.

a
The Perception of the Excitant.

A. There is little of importance to be said about this first stage of the experiment. Usually the Subjects were well-prepared, and adapted to react quickly. They were conscious of which alternative they had seen first, and of their manner of passing from the first to the second alternative. They used such expressions as « read », « glanced at », « saw while passing », « fixed ». « rested on », « saw or recognised superficially », « saw in indirect vision » etc. S^2 noticed that there was a relation between the value of the alternative and the manner in which it was seen. To investigate this point, all the « superficial recognitions » were examined and it was found that 92 % of them were in the case of *good substances*. Distincly disagreeable substances were rarely seen superficially.

Again, there was a distinct relation between the value of the alternative and the manner in which it was quitted. Subjets used such expressions as « was repelled by », « passed swiftly or slowly from », « rebounded from, or jumped away from » etc. We shall have occasion later on, to enquire into this matter.

I have explained that the card was brightly lighted up, so as to be easily legible. Now, the Subjects had different manners of reading. S^1 and S^3 read from left to right, S^2 from right to left. The question at once arose, as to the effect which priority in perceiving an alternative might have on the motivation.

In the experiments of Michotte and Prüm the effect was noticeable.

Dans certains cas le seul fait d'être la première alternative envisagée a déjà une répercussion sur le nombre de chances que cette alternative a d'être choisie (1).

(1) *Le Choix volontaire*. General conclusions. N. B. This quotation does not imply that the influence was *direct*. It was, according to Prof. Michotte only *indirect*.

The experiments of Michotte and Prüm were different from ours in this, that the alternatives were unknown to the Subjects before the excitation—whereas in ours, the Subjects were perfectly conscious of the values of the alternatives and so were far less likely to be directly influenced by so trivial a fact as the seeing of this or that alternative first. Besides the Subjects habitually read the cards in the same way—and quite mechanically.

The reading of an alternative first had an indirect influence, for that alternative being longer in consciousness was « more familiar », « more present to consciousness » to use expressions of Subjects, and in cases of indecision the alternative that was « more familiar » and « more at the focus of consciousness » was frequently chosen. Again, there seemed to be a certain rhythmn in the motivation at times. S^2 for instance affirmed that he felt a trochaic metre in his motivation.

K J K

and he felt a tendency to choose the alternative emphasised last.

S^4 also experienced something of the same nature.

It would be, however, too much to affirm that such rhythmical mouvement in motivation was an influence of any serious importance.

A careful examination of the actual results of the choices, considered in connection with a table of the figures for alternatives seen first, convinced us that, in our experiments at least, the seeing of an alternative first had no direct influence on the choice subsequently made.

b
The Motivation.

B. By Motivation we mean the phase of the choice-process which follows the Perception of the Excitant.

This phase comprises the valorisation of the alternatives and the discussion of motives. The perception of an alternative is sometimes accompanied by an impression of its value, that is to say, the value of the alternative is, so to speak, found in the word itself, directly and immediately. Sometimes the valorisation takes the form of a judgment of value, 'this is agreeable' or 'this is very good'. When the alternatives are valued, at times a conflict of motives occurs, at times the choice follows directly, with the briefest possible discussion. In fine, the motivation includes the consciousness and weighing of values; it is the centre-piece of the choice-process. We do not explain in detail its various aspects here, as, they are dealt with further on in separate chapters.

From the point of view of our researches the motivation was the most important stage in the experiment, and so the attention of the Subjects was especially directed towards it. The conditions of observation were most favourable, as the alternatives were thoroughly well known, and as they had strong hedonic values— Z, a strong positive, C, a strong negative, etc.

The time-duration of the choice-act, depended principally on the brevity or length of the motivation (1). If a conflict of motives or a hesitation occurred, the time was naturally longer. In the early choices too, where there was much concrete imagery, and where actual feelings, and explicit comparative judgments were frequent the choices lasted longer. Owing to images, judgments or impressions of value, impulses, feelings, hesitations, mental pauses and voids of many kinds, associations, and so forth, choice acts are extremely

(1) Owing to our records of the Reaction-Times of the Recognition Experiments we were able to demonstrate this with comparative certainty.

complex. They are variable in a thousand ways and their duration is likewise very variable. It would indeed be very remarkable if two choice-acts (between the same things), in spite of all this complexity were realised in exactly equal times.

Our method permitted us to compare the time-durations of the same choices, made under similar conditions, at intervals of several days. Remarkable as it may seem, on no less than four occasions, the same choices were realised in times *exactly identical* to 1/1000 (a thousandth of a second) (1).

These repetitions of the choices in exactly equal times would point to a very great precision of method, and to absolute identity of the conditions of the experiments, if they were not mere *coincidences*.

That they were not coincidences seems clear when the following additional facts are considered. On two occasions the same choices were realised with only a difference of 1/1000″; on fifteen other occasions the differences were less than 11/1000″ (4, 4, 5, 5, 5, 5, 6, 6, 7, 7, 8, 9, 9, 9, 10 thousands of a second) nearly 200 times, of the 574 experiments of the second series the differences of time were less than 1/10″ or 100 sigma.

c
The Choice.

We adduce the facts to show that the conditions for exact observation of motivation were very favourable.

C. We were not concerned in our researches with the investigation of the phenomena of Choice or Decision. This work had already been done by Ach, and by Michotte and Prüm.

d
The Realisation of the Choice.

D. An original and important character of our method, was the Realisation of the Choice made by the Subjects. This Realisation consisted in taking up and

(1) Thus S′ chose B in B-C choices in the following times : 869. 471. 466. 471. sigma, and Z in the Z-C choice in the following times : 456. 531. 531. 440. 407. sigma.

drinking the chosen substance. It formed a new and interesting phase of the choice-act and afforded much useful material for the investigation of the Relativity of Values.

This realisation never ceased to be a very serious consideration. To the very end a great effort was required in order to drink the disagreeable substances, so much so, that a few times Subjects could not get themselves to drink the chosen liquid — it was too disagreeable. On the other hand the agreeable substances were drunk with great pleasure.

The Realisation of the Choice tended then to keep the values, symbolised by the words, real and constant. It also, as we have said, brought to light the Relativity of Valùes. It often happened that a glass was chosen swiftly and eagerly on account of the unpleasantness of the alternative, and yet, when it came to drinking the chosen substance it was a very different matter. Thus S^2 for instance remarked in a J-C choice, that he took J eagerly as though it were very good, but that when he had it in hand he drank it slowly and hesitatingly as though it were very bad.

It happened at times that a Subject reacted with the determination to take a certain alternative, and yet, before his hand had reached it, he had changed his mind and resolved to take the other. At times the hand was already touching one glass when it suddenly swerved to the other, and took it. Such post-reaction phenomena were of great advantage in the study of motives.

Measurement of the time of Realisation.

It was with a view to measuring the time taken between the reaction and the raising of the glass that the Vernier chronoscope was used. The Subjects affirmed that there was a relation between the value of

the alternative chosen and the manner of seizing the glass, good substances being more eagerly taken up than the others.

Investigation of the Vernier reaction-times supported this opinion of the Subjects and also showed that there was a relation between the reaction-times for the choice, and the reaction-times for the realisation.

In the second half of our Experiments we abandoned the measurement of the time of Realisation. Our reasons were as follows. The act of taking up the glass became quite automatic ; it followed the reaction automatically. The real hesitation before drinking only began when the glass was in the hand close to the lips. The measurement of such delays would have been possible by means of specially constructed contact-glasses connected by electric wires to a chronoscope. We did not believe that the advantage of using such an apparatus would have been very great.

Again, we found by experience that little could be concluded with certainty from the time-measurement of such acts as those of putting ont the hand and taking up a glass. There are many conditions, too, capable of interfering with their normal performance.

The Instruction.

In our researches the Subjects were *instructed* to « choose a glass and drink it » (1). This instruction was understood by the Subjects to mean that *the best* was to be taken. The instruction also, of course implied that the reaction should be as quick as possible, and that the motives for the choice should be serious.

A point of importance should here be noticed. The

(1) A distinction is to be drawn between the *instruction* given by the Experimenter, and the *task* (Aufgabe, tâche) which is the Subject's interpretation of the *instruction*. All Subjects do not understand the instruction in the same sense. (See Bovet.)

instruction, implying that *the best* should be taken, naturally strenghtened the motive for the alternative which was fixed on as the best, and stimulated an immediate reaction. Again the agreeable qualities even of the best substances would be hardly strong enough of themselves to provoke a spontaneous desire or tendency to drink them, if there were not a foregoing resolution to choose one of the two. Subjects at times affirmed : « I felt, if I were perfectly free I should have chosen neither. » This indicates the influence of the task, in the carrying out of the choice act.

Determining Tendencies.

We need not dwell here on the law of Determining Tendencies formulated by Ach. This law means that when a Subject *accepts* an instruction bidding him to do a certain thing in a certain way, the thing is done at the time and in the manner determined — or, at least, a tendency towards doing it is experienced. Should something occur to disturb the Subject's obedience to this tendency an ' inhibition ' and ' trouble ' are felt.

This law brings to light the fact that an interval may exist between the resolution to do a thing (the Subject's acceptation of the instruction) and the doing of that thing. In the interval there is no conscious renewal of the resolution.

This law is interesting from the explanation that it affords of the genesis of certain feelings, such as those of inhibition. Ach too, has the credit of restating in scientific form, the traditional doctrine of volition.

As a result of the instruction, the Subjects in our experiments, had, to use Ach's terminology, a tendency to see the two alternatives, one first, then the other. This tendency grew stronger and then gradually disappeared, when, towards the end, the seeing of the two alternatives was in many cases unnecessary. Thus

S^2 speaks of a « conflict between being drawn to take Z at once, on seeing it, and the habit of seeing the two glasses ».

Under the influence of automatism the tendency *to see* this or that glass, became a tendency *to take*. Now the Subject felt a strong movement or tendency to take the glass at the right, or if he had seen that it was *bad*, to take the glass on the left. A still further stage of automatism was reached, when, immediately on the appearance of the card, the Subject, without recognising either name, felt a strong tendency ' to take one or the other, no matter which ' — a kind of blind tendency towards anything, something.

The Researches consisted of three series A. B. C.

A. June and July 1910.

The First Series of Experiments.

This series was tentative (1). The method was not yet perfected. The number of experiments was 138— all introspections.

Instead of there being only two glasses before the subject there were six—and these were marked F. E. C. D. B. A. The card was pointed thus, e. g. A—D, indicating that the choice was to be made between the corresponding glasses. The substances were only learned *during the course of the experiments*, hence motivation was at first quite extrinsic. The subjects took time to find out the positions of the glasses indicated by the cards, hence the reaction times were long. Trouble also was caused by associations of certain tastes with certain positions. The method was on the whole imperfect. The introspections were however well made,

(1) Though this series was tentative (an ' orientation ' research) it afforded interesting solutions to some questions which served as useful confirmations of the results acquired from the principal series. e. g. re Motivation-Tracks and Motive-Evolution.

and proved useful in suggesting points for further examination. The subjects for this series were Prof. Michotte, Dr Centner, and the present writer.

B. The second series which lasted from Oct. 1910 to Feb. 1911 was the longest and most important of our researches—it consisted in 834 experiments, of which the 574 choice experiments, which form the nucleus of our material, were divided as follows. The Second Series.

Prof. Michotte	175
Dr Fransen	224
M. Vance	175

The method was that which we have described in the early part of this chapter. The introspections were very carefully made; the subjects being well trained introspectors.

During this series there was a break of three weeks for the Christmas Holidays. This interval caused a regression in the automatism which was already far developed before the Holidays. In order to determine precisely the extent of this 'regression' the figures and percentages for the pre-holiday, and post-holiday experiments were made up separately (1). Comparison of these figures and percentages threw light on interesting features of automatism.

C. The Third series (Feb. 1911) was much shorter than the second. It consisted simply in this, that the *instruction* was reversed, while all other conditions remained precisely the same. The former instruction « Choose a glass and drink it » implied that *the best* should be taken. The instruction « Choose *the worst* and drink it » was now given. The Third Series.

The object was to test the degree of the automatism developed in the second series, and to experiment on

(1) There were 273 choice experiments before, and 301 after the holidays.

the relativity of values. The number of experiments was 91 which was considered sufficient.

Prof. Michotte	28	experiments
Dr Fransen	28	—
M. Vance	35	—

The introspections were, of course, carefully recorded.

The total number of *introspections* recorded during the course of the researches was 1063. There were besides several hundred preparatory experiments, and the tedious ' tastings '—all together numbered a few thousand.

Reaction Times.

We have seen that there were two periods in the experiments; A and B.

A. The interval between the excitation and the reaction.

B. The interval between the reaction and the realisation.

A. Was ' the time of choice' and was marked by the Hipp chronoscope. B. Was 'the time of realisation' and was marked by the Vernier chronoscope. We shall give tables showing the A duration for the second and third series (distinguishing between the two parts of the second series) and, also, show that a relation existed between A and B.

1. Times of Second Series. 273 experiments before the Holidays.

Experiments.	1-20.	20-40.	40-60.	60-80.	80-100.
S^1 1219	803	716.4	591	437	
S^2 1011.8	1012.3	998.8	952	785	
S^3 1461	1318	1245	1418	—	

Times of Second Series. 301 experiments after the Holidays.

	1-20.	20-40.	40-60.	60-80.	80-100.	100-120.
S^1	581.8	545.7	495.5	478.7	—	—
S^2	1057.6	953	934	816.5	668.2	615.7
S^3	1020.3	875.1	746.2	654.9	574.2	—

These figures are « Arithmetical means » — times are marked in sigma.

2. Times for the Third Series.

S^1	mean time for		28	experiments	593.7
S^2	—	—	28	—	723.2
S^3	—	—	35	—	564.5

With regard to B. the reaction-times were less regular, and less reliable. From a comparison however of the two following tables—times of choice, and times of realisation of choice—for the 273 experiments of Nov.-Dec. 1910—it would seem that a relation existed between the two durations. The realisation times are counted in Vernier 'beats'.

3. Experiments	1-30	30-60	60-90
Realisation Times			
S^1	31	27	23
S^2	27	22	21
S^3	28	26	30
Choice times (in Sigma)			
S^1	1096	717	526
S^2	1060	943	859
S^3	1461	1221	1431

It will be noticed that while for S^1 and S^2 both tables show a fairly regular decrease, for S^3, both tables show a great increase in the last figure. We have not sufficient data to establish the existence of the relation of which we spoke. The figures adduced cannot of course prove, they are merely indicative.

Referring to the tables given on the last page, we may point to their great regularity. Seldom in the last 500 experiments did the reaction time last over a second (save in cases of Hesitation). These times proved a most useful objective check, and were of constant help in investigations about Automatism and Hesitation. A few hundred of our experiments lasted *less than or little more than half a second.*

The chief advantage of our Method, was that it enabled us to trace, from the very beginning the building up of a certain number of Motives, based on the known qualities of the different substances Z. B. C. etc. We were enabled to watch, day by day, the development of real Motives, in real choices. We could watch, clearly and plainly, the Evolution of Motivation under the various influences of Relativity, Automatism, and Hedonism. We could examine, feeling confident that we were in possession of the chief conditions at work, various modes of Strengthening of Motives, and various influences of Hesitation.

We were able, under favourable conditions of observation, to analyse various types of Motivation, as seen in different choices, and various aspects of like Motivations in the same choices. By bringing together the records of the various repetitions of the same choice, we were in a position to examine how far like choices, in like circumstances repeat themselves, and we were able to formulate our theory of Motivation Tracks.

With regard to possible objections against our method we shall consider two. It might be objected ; A. that the Experiments were not Will Experiments, the Will not being called into play ; B. or if Will Experiments, that they were artificial and unnatural.

A. It is by no means easy to prove that in one particular case the Will was in play, and in another case, not. It seems best, to appeal to the Subjects themselves, and quote from their introspections. Two Subjects, S^2 and S^3, are perfectly explicit : we quote, first, from S^2 :

' a deliberate choice,' ' a voluntary decided choice, ' ' I feel myself responsible ', ' choice was free, (1) a true choice, an easy

(1) We are not here trying to prove that the choices were *free*. That does not concern us here. We are adducing evidence to show that *the will* was in play.

choice, ' ' I chose and preferred Z to C deliberately and freely ', ' I think the Will comes into play, I often, not always, take one or other decidedly ', ' like a choice in ordinary life '; many similar instances are found. Also S^2 often speaks of resisting tendencies and of comflicts e. g. « a kind of struggle between the fact of being drawn by Z and the habit to see the two words and to know both. »

We now quote from S^3 : « I was aware that this was in some sense a perfectly free choice; that I might at another time choose B; » « My Will was as much present in choosing L as in any act of my life — a distinct motived choice, » « I think that the Will enters actually now, each time before I make my choice. ' I think it is a definite choice, a definite motion of the Will ' — many similar instances are found. S^4 gives also much evidence of the presence of the Will, several times he records decisions, consents, resisting of tendencies, etc.

In the following chapters many forms of manifestation of the Will, occurring in our experiments will be brought to light. Often feelings of effort, of responsibility, of ' taking the line of least resistance ', of consistency and inconsistency occurred, indicating the presence of Will in the choices. We have, already, perhaps dwelt too long on this first objection.

B. With regard to the supposed artificiality and unnaturalness of such choices as ours, a misunderstanding seems to exist. Some Psychologists take exception to the pettiness of the choices, the tension and unreality of the reaction-experiment, etc. The best answer to give to such objectors, is « *Come and see.* »

True, the choices are slight, but they are none the less real, and the motives are real. Subjects constantly say that they are just like the choices of ordinary life. Prof. Michotte writing of his experiments, in which the choices were less *real* than ours, being between simple arithmetical calculations, says (1).

(1) *Le Choix volontaire*, sec. 3.

Tous les motifs qui se manifestent dans la vie réelle, nous les trouvons représentés ici, et cela est tellement frappant que nous trouvons soulignée à tout instant, dans les procès-verbaux, l'analogie frappante que les sujets constatent entre ces expériences et des discussions de motifs qu'ils ont observées dans la pratique courante de leur existence. L'intérêt est tellement absorbé par l'expérience même que les décisions sont prises, dit l'un des sujets, avec le même sérieux, avec la même anxiété que s'il s'agissait d'une chose de toute première importance.

In fine there seems to be a confusion between the *reality* of a choice and its *importance*. That the two things are not identical may be seen in the case of a party playing a game (e. g. Cards) « for love ».

The game would be more *important* (at least from the point of view of our bank-account) if we played at a guinea a point — but it would be no more *real*, and, perhaps, no better played, than in the former case.

S^3, who was by no means inclined to exaggerate the merits of the new methods wrote, after our researches were over.

On the whole I can say, that nearly every choice that I made at your direction has been as *real* to me, as I think any choice that depended upon reproduced and represented elements could be : nor do I mean to say that such choices need be less *real* than the ordinary immediate choices of everyday life.

As regards objections based on the presence of feelings of tension, and constraint, we have only to say that these feelings, in the case of practised Subjects have either completely disappeared, or become quite negligible. In fine, the best practical answer to such objections, as those I have here discussed, is to be found in a polite invitation « *Come and see* ».

CHAPTER III.

MOTIVES.

Motives and Motivation.

The practice of considering Motives apart from their natural setting, in the Motivation of the Will-Act, seems hardly justifiable. Motives are neither separate entities nor independent forces. They do not follow lonely tracks, nor do they fight little battles among themselves. They are not individual nor absolute, but are by nature relative. Motives are integral parts of the Motivation. Apart from it they are meaningless. They depend on Motivation for their form, and their force, and even for their existence. With Motivation they evolve, and they partake of its nature, being concrete when it is concrete, and abstract when it is abstract.

Motives, then, should be considered as phases of the Motivation. It is the whole man who deliberates and chooses. It is, as Höffding well said, the nature of our whole self alone which decides if something can become a motive for us.

C'est la nature de notre être qui décide si une chose peut devenir un motif pour nous.

We propose, then, in this thesis to emphasise this dependence of the Motive on the Motivation, dwelling especially on the Relativity of Motives. It is nevertheless necessary, for didactic reasons, to consider

Motives apart, (in this chapter and the next), so as to explain what we mean by the Psychological Constitution, and the Force of Motives.

Provisional Definition of *Motive.*

Placing ourselves at the point of view of one who observes directly, what passes in the mind, during a Will-Act, we define motives, provisionally, as *our reasons for acting.* We do not mean to imply that motives are always conscious, or that what *appear* to us as « our reasons for acting », are really « our reasons for acting »; nor do we imply that motives always appear under the aspect of *reasons*, we merely, give, the common sense view of motives.

Division of Motives.

Motives may be considered from the point of view of form or from the point of view of content. From the point of view of form, motives appear as judgments, impressions of value, representations, tendencies and feelings : these forms may in turn be assumed, by one and the same motive, and that, not by chance, but *owing* to definite laws of motive-evolution :

> Il existe, psychologiquement, une dépendance génétique entre les différentes formes sous lesquelles apparaît un motif donné. Le concept de motif s'applique à toute la série génétique et le motif comme tel, la raison qui justifie le choix en dernière analyse, peut être représenté, dans un cas donné par des phénomènes totalement étrangers à son contenu originel (1).

By « content » of motives, as distinguished from their form, we mean that which constitutes the motive, and makes it distinguishable from other motives. It is the meaning or signification of the motive — which meaning can, as we have seen, appear under various forms :

> Les différentes formes d'un motif constituent une série évolutive dont l'ensemble seul peut nous donner l'explication de la valeur, de tel ou tel phénomène particulier (2).

(1) *Le choix volontaire*, p. 210.
(2) *Ibid.*, p. 224.

From the point of view of content, motives may be divided into subjective motives; (cases of blind impulse and capricious tendencies) and objective motives. The latter motives are intrinsic, when their basis lies in some quality of the object itself, and extrinsic, when their basis is some merely accidental character of the object, as for instance its ' position ' or its ' rarity '.

Thus if I buy a stick, because it is strong and light—my motive is intrinsic, for strength and lightness are qualities belonging to the stick itself. If I buy it, because it is the only one I can get, my motive is extrinsic—it is not based in a quality of the stick.

Objective and subjective motives alike may be positive or negative. When a subject feels himself attracted or drawn by something, with a feeling of pleasure, and, even, a muscular tendency to react and to take it—we say that the motive is *positive*. On the other hand, when a subject is repelled by something, hesitates perhaps. has feelings of fear or disgust, and feels an impulse to turn away from it, and to take something else in preference—we say that the motive is *negative*. In fine attractions and likings mark positive, and dislikes mark negative motives.

Different Views of Motives.

For Wundt the combination of ideas and feelings which in our subjective consciousness are the immediate antecedents of the volitional act are called the motives. Every motive has thus an ideational and an affective part. The former part is the moving reason, the latter the impelling feeling—the moving reason and impelling feeling, the objective and subjective aspects, are often fused together.

Considered in itself a motive consists of a feeling accompanied by a more or less clear representation, or even a mass of representations gathered into one complexion (1).

(1) *Outlines of Psychology* (Judd) sec. 14.

Wundt emphasises the fact that the feelings are the springs of action and not the representations. He shows too how feelings combine into a unitary whole which gives a new impelling feeling. This new impelling feeling plays the chief rôle in volition.

This follows from the fact that the feelings are integral components of the Volitional process itself, while the ideas are of influence only indirectly through their connections with the feelings. (1)

Mr Stout. In the more developed forms of deliberation, writes Mr Stout, there is a kind of mental see-saw. Now one alternative, and now another comes predominantly before consciousness, and the mind is variously attracted and repelled by each in turn. The desires and aversions which arise in this way are called motives. Hence the process of Deliberation is often called a conflict of motives. Motives are not mere impulses. They come before consciousness as reasons why I should act in this way or that way. They are not independent forces fighting out a battle among themselves, while the Ego remains a mere spectator. On the contrary the motives are motives, only in so far as they arise from the nature of the self, and presuppose the conception of the self as a determining factor. From this it follows, that the recognised reasons for a decision can never constitute the entire cause of a decision. Behind them there always lies the self as a whole, and what this involves can never be completely analysed or stated in the form of definite reasons or special motives. (2)

W. James. James begins by hinting in his half-mysterious way that we are ignorant of the true source of motives for « the connection of the reality of things with their effectiveness as motives is a tale which has never yet been fully told. »

He speaks in the same vague manner as Mr Stout.

It is where the normally less efficacious motive becomes more efficacious, and the normally more efficacious one less so, that actions ordinarily effortless, or abstinences ordinarily easy, either

(1) *Outlines of Psychology* (Judd) sec. 14.
(2) *Manual of Psychology*, p. 605.

become impossible or are effected if at all, by the expenditure of effort. (1)

We have seen his just criticism of the pleasure-pain motive theory of Bain. He himself proposes five types of character, to which correspond five types of motivation.

Thus for the reasonable type « the arguments for and against a certain course seem gradually and almost insensibly to settle themselves in the mind, and to end by leaving a clear balance in favour of one alternative, which alternative we then adopt without effort or constraint. »

James, in spite of his vagueness and dramatic style, perhaps because of them, gives some useful suggestions, as when he speaks of ' the urgency with which an idea (motive) is able to compel attention and dominate in conscience. '

Höffding like Stout, Ribot, Ward and James, views motives from a general standpoint. H. Höffding.

En réalité, le motif, la force qui détermine la volition c'est toujours nous-mêmes pris sous une forme ou sous une face déterminée. Nos motifs sont des parties de nous-mêmes. Indeed, he adds, that all acts truly ours, are necessary manifestations of our intimate being. « C'est la nature de notre être qui décide si une chose peut devenir un motif pour nous. »

He adds that our motives are not determined solely by our original nature, but also by our will, and by our anterior actions. In fine, he agrees, more or less with Ribot that « *le motif prépondérant n'est qu'une portion de la cause et toujours la plus faible quoique la plus visible* » (2).

(1) *Principles of Psychology*. Vol. II, p. 536.
(2) *Esquisse d'une Psychologie*. (Section) La volonté et la vie inconsciente.

Mr Mackenzie. The term « motive », writes Mr Mackenzie(1), is not less ambiguons than « intention ».

> The motive means of course, what *moves* us or *causes* us to act in a particular way. Now there is an ambiguity in the term « cause. » A cause may be either efficient or final... There is a similar ambiguity in the use of the term « motive. » A motive may be understood to mean either that which *impels* or that which *induces* us to act in a particular way. In the former sense we say that we are moved by feeling or emotion...

Moral activity or conduct is purposeful action ; and action with a purpose is not simply moved by feeling ; it is moved rather by the thought of some end to be attained. This leads us to the second and more correct sense in which the term « motive » may be used. The case of a man moved by pity brings this distinction to light. The mere feeling of itself is not a sufficient inducement to action.

> When a man is moved to action he must have, besides the mere feeling, the conception of an end to be attained... The motive, that which induces us to act, is the thought of a desirable end.

Mr Mackenzie quotes Aristotle ' ἀεὶ κινεῖ τὸ ὀρεκτόν ' (it is always the desired object that moves to action).

Motive is used in various senses, by Külpe, Dürr, Ebbinghaus and others. For Prof. Dewey « the foreseen, ideal consequences, are the end of the act, and as such form the motive ». Pfänder describes the motive as that by which I feel myself lead to tend towards something or to do something; Meumann distinguishes between a broader and narrower meaning of motive ; the sum of all the processes which prepare the act, and the conscious reasons of the act ; and shows, as does Mackenzie, that the importance of feelings in action has been exaggerated by most psychologists.

(1) *Manual of Ethics*, p. 62.

In general, psychologists, have dwelt either on the presence of *feelings*, or on the presence of a *representation* of the end. A thorough analysis of motives has not yet been made. As Dr Michotte and Dr Prüm well point out, the constant factor, if there be one, which characterises motives has not yet been discovered.

Nous n'avons pu,... découvrir de facteur constant caractéristique du motif, et qui serait propre à cet élément de la vie psychique (1).

Summary of Motives.

We propose, before going into the problem of the Psychological Constitution of motives, to give a brief summary of the motives which occurred in our experiments. This will show the scope of our material, and will render more intelligible our subsequent analyses of motives.

We shall give first, some examples of subjective motives, and next some examples of intrinsic and extrinsic (objective) motives.

Subjective Motives.

Subjective motives were rare in our experiments, mainly because the values of the alternatives were well known, and because the subjects took the motivation seriously, and based their choices on the known, good or bad qualities of the substances, instead of on subjective impulses At times, nevertheless, the choices were made in virtue of such impulses — the Subjects often not being able to account for them. Feelings of astonishment and regret usually followed choices of this kind. A few examples may be given :

'The moment I saw D I felt inclined or drawn towards D ; no judgment, only a feeling' 'I have for T an inexplicable attraction, I feel drawn towards it, without knowing why'; etc. Subjects often felt active tendencies to take this or that alternative, such tendencies were liable to recur when the same choice was presented again.

(1) *Le Choix volontaire*, p. 209.

Capricious choices occurred at times. The Subject, according to the mood of the moment, rejects his habitual favourite and ' in a whim ' takes something else. He usually feels ashamed, or feels inconsistent on such occasions. At times too, in a mocking or contemptuous way, or even in a kind of spite, without any objective reason, Subjects reject an alternative : ' I felt *angry* against B, so I took C ' ; ' I took it with a contemptuous glance at the other ' etc. Fair-play and ' do-it-for-luck ' impulses appear at times : « Ill take this for luck », « I said to myself, I'll give the other one a chance » etc.

A type of choice which occurred somewhat frequently was what I have called « inexplicable choices ». The Subject, at a given moment, would react and take a glass without having the faintest notion why he did so — and with a feeling of astonishment at having done so : « I took B without knowing why », « at a given moment I reacted and took T without knowing why, » were often to be found in the introspections. Now, it is clear, that such choices may be explained in many ways.

They may be due, and we believe usually are, to what is called the « temporal determination ». The Subject when he feels that the Experiment is lasting too long, reacts automatically and takes the nearest glass, or the glass about which he is thinking, without having any conscious motive for his choice. Support for this view is found in a phenomenon that we noticed during our researches. Some Subjects e. g. S^4 often reacted and realised his choice when the duration had reached a certain number of sigma ; and that, even in successive choices of a different type.

E. G.

V K	699 sigma		V K	478 sigma	
Z L	700 —		Z L	477 —	
J V	539 —		J V	532 —	
Z C	531 —		Z C	531 —	

Inexplicable choices, are due at times however, to sudden subjective impulses, and in such cases Subjects e. g. S^2 regret having chosen *tellement à la légère*. Somewhat similar; is the following choice of S^4; « Saw C with pleasure, remembering it was good, but hesitated a little as if waiting for an order to take it. *The order came* and I took and drank it automatically» S^4 was of opinion, that the « order » which came was nothing more than a subjective impulse.

Objective Motives.

a Intrinsic

The motives which occured most frequently in our researches were *intrinsic* (objective) motives of a more or less developed form. They were mostly hedonic (1), being based on the agreeable or disagreeable qualities of the substances. At first they were concrete in form, and accompanied by imagery, or reproduced tastes. Later on they became more and more abstract and intentional. Naturally the forms were, various :

1. *Judgments* : ' K is excellent ' ; ' Z is very agreeable ' : 2. *impressions of value :* « I had an impression of E's goodness in reading the letter E » : 2. *active tendencies :* « I turned away from C in disgust » ; « C repelled me to the other » : 4. *feelings* (based on objective qualities) « feeling of profound pleasure on seeing K » etc. The usual type of intrinsic motive took the form, however, of a knowledge or consciousness that e. g. ' Z was excellent ' or ' better than the other ' or ' best of all '. As motivation developed, the motives became so attenuated in form that the choices were made ' by a kind of abstract algebra '.

b Extrinsic

When Hesitations were very strong the Subjects, unable to fix on an intrinsic motive, often saved themselves from the pain of further indecision by ' taking the glass nearest the right hand '; or ' by reacting just to finish '; or ' by taking the one that seemed most familiar '. In these cases the motivation was evi-

(1) At times the basis was the quality of *healthiness* or *harmlessness* : « I took V as it is healthy drink » « washarmless, I took it. » Such motives are not strictly speaking *hedonic* though they are *intrinsic*.

dently inferior in quality — less ' serious ' so to speak. As a result Subjects often felt dissatisfied after the choice. — They felt they had reglected the *duty* or *task* imposed by the instruction, of making a serious choice.

Extrinsic motives occurred frequently in our preparatory series, because, the glasses were at first *unknown*, and choices had to be made for reasons wholly *ab extra*. « C just before me » « D seemed clearer » « Saw A last, this was against A » « B was far away, this was against B » etc.

Something like an aesthetic motive occurred at times in the case, at least, of T. This substance was regarded as ' enigmatic ' and ' mysterious '. It exercised an attraction, hard to define which at least was neither hedonic nor deontological. e. g. « One has for Tan inexplicable preference, because the value of T is not expressible in terms of goodness or badness ! Its value is in the word itself. This value is a middle value, deprived of all feelings of disgust or pleasure. »

Many motives are so closely associated with imagery that the imagery seems to be in part the motive. Sometimes a scale of values was present as a concrete image ; figures or positions high or low were seen ; sounds, colours, reproduced tastes, associations, motor images appeared, and seemed, to subjective consciousness to exercise influence on the choice :

Motive for F was *hearing* the words ' B is worse ' ; the figure 3 came to my mind in connection with some imaginery table (here the Subject took the glass symbolised by 3 and rejected the other which was symbolised by 7) ; my motive was that I had ' a vivid kinaesthetic image of taking C ' ; « K and Z both sweet, but Z stood out as it were from a back-ground, which back-ground was identified with K » ; ' V was associated with an image of childhood ' ; at times one substance appeared as a ' coloured ' taste in contrast with its companion ' colourless ' taste.

The greater or lesser degree or duration of consciousness with respect to an alternative was distinctly

influential in motivation. The degree of consciousness was at times affected by seeing a word more or less clearly, owing to its being printed perhaps, more darkly, or more in the middle of the card. « J was more present to consciousness » ; « V had occupied my attention longer than K » ; « V was not taken by distraction but because it was looked at a long time ». The fact of « resting on » or « fixing » an alternative, which happened frequently, rendered that alternative more familiar, and in consequence, more likely to be taken — especially in cases of doubt. « Took the *more familiar* » was frequently found in the introspections ; also such instances as « V was not conscious as being more pleasant but as being more known, more intimate ».

Deontological Motives.

Motives of a deontological nature occurred frequently. The Subject, *in view of the instruction received*, felt bound to do this or that ; ' to see the other alternative' ; ' to choose Z as it was at the top of his scale ' ; ' to reject C as it was the worst of all ', etc. The instruction implied that the best should be taken, and so there often appeared feelings of satisfaction, of rightness, of certitude in taking the best. Somewhat akin was the motive of *consistency*. Subjects felt they *ought* to choose ' in view of their past preferences '.

Feeling of surprise at seeing D again. Immediately felt *certain* as to what to do. My last decision was all right. I did not again enter into motives or look for D. I chose A at once, in virtue of my last decision, with a feeling of satisfaction.

In our preparatory series the motive of Rarity occurred fairly often—but nearly always in connection with a deontological motive—' that I ought to try the new one '. e. g. « I 'll take this glass because it is new and because I should know all the glasses as soon as possible ».

In view of the duty, to react quickly, Subjects at times reacted without having a fully formed motive :

Consciousness that it was time to react. Looked at B and took B. Motive was certainly that it was time to react. Or again, « Hesitation. No motive for deciding. Felt the experiment was lasting too long. Chose D almost without a motive. »

It will be seen, from these examples, that a great variety of motives came to light in our researches, although the choices were as simple as possible.

We shall now examine the question of the Psychological Constitution of Motives—and seek to determine the phenomena characteristic of Motives.

Psychological Constitution of Motives.

Our method of investigating the problem of the Psychological Constitution of Motives was as follows. It will be remembered that ' recognition ' experiments proceeded the ' choice ' experiments. In the former the Subjects read the word e. g. Ziv and reacted when they were conscious ' *of what it was* '. Similarly for K, C, etc. (1)

Now in the Choice experiments the card presented two words e. g. K—C between which a choice was to be made. Motives at once sprang up. These motives e. g. that for K, had *much in common* with the Subject's recognition of K, when it appeared by itself in the Recognition Experiments. Naturally, in the Recognition Experiments there were absolutely no motives, *strictly* so called, but there were judgments and appreciations of value; ' motives ' in fine in an embryonic state. By comparing then, the Recognition and the Choice introspections, we could trace the genesis and evolution of motives and determine their Psychological Constitution.

(1) K, C stand for Kum, Chouc etc.

An example will make this matter clear. We shall consider K and C, as they appeared for S^3, *first* in the Recognition Experiments, and *secondly* in the Choice Experiment K—C.

1. K appeared. Reaction-time, 753 sigma.

No local image; feeling of complete indifference. Awareness that K represented a slightly sweet, insipid taste which I dislike. Per se it is objectionable. Per accidens (when compared with the others) it is slightly pleasant.

2. C appeared. Reaction-time, 455 sigma.

A nasty, sharp, sickening flavour, recalling to me an emetic. Had image of glass and mark. Reaction was regular. Judgment of value against C.

3. The choice K—C in which K was chosen. Reaction-time, 1070 sigma.

First I read both in the order K—C without identifying them. Then coming back I recognised K, merely as something sweet, and C as an unpleasant, sickening liquid. I excluded C as though putting back something, and chose K definitely as my preference, basing myself on sensations of taste.

Attitudes of *Recognising* and of *Choosing* contrasted.

We see, here, that K and C, appear in the Choice act under their *characteristic* aspects — K 'as something sweet'; C 'as an unpleasant sickening liquid'. In the Recognition Experiments the attitude is that of remembering, and becoming aware of; in the Choice Experiments the attitude is that of valuing, comparing and prefering. « I excluded C as though putting back something. »

In the Recognition Experiments visual and local images, reproductions of taste; specifications of tastes as 'sweet', 'bitter', 'salty'; associations; with, from time to time appreciations of value, were the characteristic phenomena. In the Choice Experiments, judgments of value and comparisons, explicit and im-

plicit, impulsive tendencies, actual feelings, hesitations, consciousness of duty, static states of conscience, etc., were the usual phenomena. Each Subject, naturally, took up a personal standpoint, and chose in his own way. Nevertheless a certain uniformity prevailed in the ' choosing' attitude, as did, likewise, a uniformity prevail in the ' recognising' attitude. In the former case the ' me' seemed to be more present, there was a practical, ' selfish' effort to make the best of the choice. In the latter, recognitions were often very impersonal. There was an awareness, but no ' personal' interest.

In the light of this contrast between the Psychology of the Chooser, and the Psychology of the Recogniser, we can, perhaps, better understand the Psychological constitution of motives — that is to say, the characteristic marks of motives, as they are observable in introspection.

Let us take one more example of a substance as it appeared in the Recognition Experiments and afterwards in the choices. C appeared usually in the Recognition Experiments thus :

Remembered C at once. Conscious it was horrid. Hardly any hesitation. The card seemed to token a horrid thing. My mind did not go beyond the card.

In the choices C appeared thus :

Looked at C. Immediately had consciousness « O ! its that one », with knowledge that it was an awful thing and *a feeling of repulsion*. It was something *dynamic*. Something like an impulse not to take it.

We have here, in our opinion, the characteristic marks of a hedonic (in this case negative) motive :

1. conscousness of value : « it was an awful thing »
2. accompanying feeling : « feeling of repulsion »
3. tendency (dynamic) « impulse not to take it ».

Needless to say the « Psychological Constitution » of

motives is not always so evident. When automatism develops the feelings disappear, and the consciousness of value becomes so faint that it is hard to say if it is still present. The tendency however remains, and grows stronger. This tendency becomes more and more impetuous, and often leads to mistaken choices, not directly, but indirectly. Subjects for instance, accustomed to find good things at the right hand, gradually tended impulsively towards that side, before even having read the card.

Two points, of interest, with respect to the question of the Psychological Constitution of motives, may be added. 1. We have said that when automatism develops, the feelings and judgments of value disappear. The same effect follows, if a choice is made, in distraction. Not only does the 'content' of the motive become more meagre, but also its form. The motive becomes attenuated.

In choice N° 150 — of S^2, for example.

The experiment passed *in distraction*, so that all judgment of value, and all feeling of pleasure or displeasure were absent ; they did not come.

2. The second point is this. Motives are subject to the laws of '*constellation*' in an interesting way. If, for instance, in the choice Z — T, Z being valued first, is appreciated as « sweet », the motive for T takes the same aspect, and appears as more or less sweet (1). If Z is judged as definite and distinct in flavour, T appears as more or less so. Motives are thus relative to accidental circumstances, as well as being relative to the general nature of motivation.

(1) This fact is not due to an explicit or implicit judgment of comparison, but to the mechanism of association.

CHAPTER IV.

MOTIVE-FORCE AND ITS MEASUREMENT.

The Meaning of Motive-Force.

Motive-force was often spoken of by our Subjects. They felt this or that motive strong or weak. They were conscious at times of a certain conflict between motives, as though two motives were measuring their strength. They were aware too, of the augmentation or diminution of the force of this or that motive, and at times, ventured to explain the cause of such phenomena; for instance, S^2 in an introspection says; « Having only superficially seen K, the motive for it, was not so strong, as if I had seen it well. The other, B, a negative motive, wakened up and *strenghtened* the motive for K »—or to take an example from S^3; « I chose V for its quality, *reinforced* by the thought of its intensity ».

It seems admissible to use this metaphor of the « Strengthening of Motives » as it was used naturally and spontaneously by our Subjects. Some metaphor must be used in order to make this matter clear, and the present seems to have least against it (1).

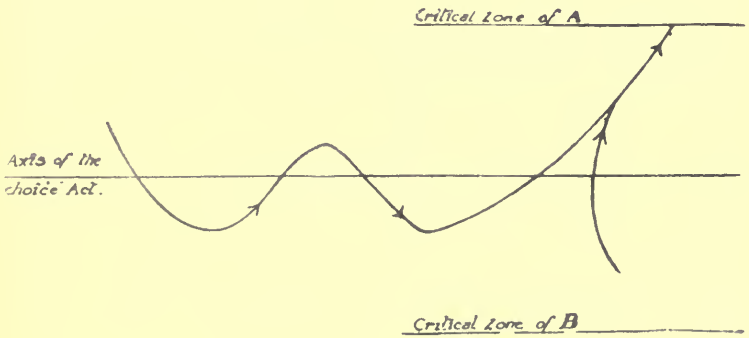
Motives, as we shall see presently, are liable to fluctuations during the choice act. They grow stronger

(1) Mr Stout, in his *Manual of Psychology*, e.g. p. 631, speaks of strengthening Motives : « We may find that a certain motive or group of motives has not the strength or prominence it ought to have. We may then attempt to give it this strength... etc. »

or weaker according to various circumstances of contrast, of degree of consciousness, and so forth. They seem to mount and to descend, to trace *a veritable* curve. It is not sufficient that one motive should predominate over another, in order that the choice may be made in its favour. It must predominate by a certain surplusage. It does not suffice that it should be stronger than the other, in order that it may win. It must, itself, first reach a certain degree of strength or force—it must reach what we shall call its *Critical Point*.

The Critical Point of Motives.

By the Critical Point of Motives we mean, that point or degree of strength, which, being reached by the motive, the choice results automatically. The hypothesis of the Existence of such a Critical Point or Zone, is suggested by the consideration of certain effects of motive strengthening which we shall study presently. If we may be pardoned for using a diagram, indicating the fluctuations of motivation, and the final attainment of the Critical Point by one motive, we should construct it, as follows.



The fluctuations upwards are meant to represent the fluctuations of the motive for A; and the fluctuations downwards, those of the motive for B. At a given

moment the motive for A is strengthened; (this is indicated by the arrow arriving from the right); then the Critical Point is reached and the choice follows automatically (1).

The points which we consider important in this hypothesis of the Critical Point of Motives, and those for which we shall adduce evidence forthwith, are A and B :

A. The fact that motives are *strengthened.*

B. The fact that there is an *economy of motive-force* —that, when motives are brought up to a certain degree of strength, the reaction or the choice automatically follows; there being no further ' wastage ' of motive force.

The Strengthening of Motives.

Motives are strengthened in various ways. The process, at times lasts long, as when a Subject, having only a weak motive, waits patiently for another motive to come. No other motive comes, but in the mean time, owing to its being a long time at the focus of consciousness, or to its being rendered stronger by the consideration that ' it is the only motive to be found ', the weak motive reaches, at last, the Critical Point and the choice is effected. At times, however, the process is very short, and the Critical Point is reached at once, with almost *explosive* results. This was often the case when C a very disagreeable substance was seen first. e. g. « I saw C and immediately jumped on J » or « I saw C and rebounded at once on B ». Here the motive for the second alternative was at once driven up to the Critical Point even though, in both these cases, the second alternatives were unpleasant. They were however much less unpleasant than C.

(1) We are conscious of the shortcomings of such an image—we use it merely for didactic reasons.

The various modes of Motive-Strengthening must now be examined. They are chiefly four : Modes of Motive-Strengthening

1. The Effects of the Instruction.
2. The Effects of Contrast.
3. The Personal Factor.
   a. Subjective Impulse.
   b. Appeal to a principle.
4. Accidental Causes.

a Effects of the Instruction.

The Instruction given to the Subject « Choose a glass and drink it » implied that he should choose *the best*. The Subject was also under the Instruction « to react as quickly as possible. »

In virtue of the duty of *choosing the best*, motives became in form partly deontological e. g. « Z may be taken » ; « It is allowable to take K » ; « Z must be taken » ; « C may not be taken » etc. This meant that the positive motives for Z or K, or negative against C, were rendered stronger, in virtue of their fulfilling a certain condition, viz, the condition imposed by the instruction of choosing the best. The instruction gave such additional force to the motive for the best that : 1. feelings of certitude sprang up « Z may certainly be taken » ; « judged « it is Z » with feeling of certitude », also feelings of pleasure at having 'a clear choice' or 'an easy choice'. 2. the choice was effected in such cases, rapidly and without further ado.

In virtue of the task of reacting rapidly, when, the Subject felt the time duration was becoming too long, he chose at once, the motive at that moment present to consciousness being strengthened, and brought up to the Critical Point. « Conciousness that it was time to react. Looked at B and took B. Motive was certainly that it was time to react » There was here a motive for B due to the fact that B was at that moment

present in consciousness. This motive was strengthened by the necessity of reacting. An other example is that of a Subject, who, feeling the experiment was lasting too long, and at that moment noticing that a certain glass was at the right hand and easier to take, took it for that reason. The motive, again, was strengthened by the necessity of reaction quickly — 'the temporal determination', as it is called.

b Effects of Contrast.

When an indifferent substance was found beside a bad one, the former was taken eagerly as though it were very good. Its relative value was considerable. The effect of the contrast being to reinforce it. In our chapter on the Relativity of Values we shall give many examples; one will suffice here. « V revived thoughts of past pleasure; C of past disagreeableness. So I chose V, for its intrinsic quality, helped by the intellectual recognition of the fact that V and C were extremes of my Scale of Values ».

Owing to the effects of contrast the value of an alternative was frequently exaggerated; so much so, that whereas it was chosen swiftly as something *good*, when the Subject had it in hand to drink it, he found he had caught a Tartar. « When I have J in my hand I am not so enthusiastic about drinking it, as I am to take it, in preference to C ».

This shows that Motive-Strengthening is indeliberate, and even an unconscious process. It is none the less real.

c The Personal Factor.

I Subjective Impulse.

In 'caprice' choices, a substance is taken on impulse, or for the whim of the moment. The Subject, for instance, decides quite impulsively, that, intensity should prevail over quality, and takes a sharp, bitter taste in preference to a sweet one. At another time, in a weaker mood, he chooses the sweet 'and feels he

is following the line of least resistance' ; or perhaps he feels an unaccountable dislike to a certain substance, not to its quality or intensity, but to itself, and he rejects it with mockery or a feeling of contempt.

c 2 Appeal to a Principle.

The most interesting cases of Motive-Strengthening were, when a Subject appealed, in cases of equivalent motives, to some one of his principles e. g. « I'd better be consistent » ; « Better take the more familiar » ; « I 'll take the safer one » ; « B is more definite ; I like what is definite » etc. In these and similar cases we see the Subjects, spontaneously bringing one of their life-principles to bear on the Motivation, and thereby strengthening the favoured Motive, and effecting their choice. The taking *of the more familiar*, for instance, which was a principle applied again and again by S^2 in various circumstances, during our researches, expresses, we feel we may say it, the salient note of his character.

d Accidental Causes of Motive-Strengthening.

There were many other modes of Motive-Strengthening into which we need not enter in detail : the fact that a motive was more present to consciousness strengthened that motive e. g. « C was more present to consciousness. I had waited longer on it. I took it ».

Sometimes a choice was made with evident energy and effort : I chose K as though its greatest concurrent was beside it » ; some times, a close analysis of the good qualities was made with a view to strengthening one or other motive : « K was sweet, but Z, over and above sweetness, had an agreeable complexity of taste » : again, at times, the Subject seems to try to suppress or prevent the augmenting force of a rival motive by a contemptuous expression of some kind : for instance S^2, N° 58 says : « When I saw Z I was already moving towards K, to take it. The judgment came « Z is also good. » Z seemed to protest. A contemptuous « Soit » suppressed Z's protest, and I judged « K is better all the same ».

In the terms of our hypothesis, this last judgment « K is better all the same » had a special rôle; that namely of giving K the required force to reach the Critical Point.

Another interesting case of Motive Strengthening was that of S^3. « There was a kind of kaleidoscope movement of the motives in favour of V ».

Economy of Motive-Force.

In our chapter on Automatism we shall see how, as motivation evolves, motives become rarer. They grow more abstract in form, and the choice becomes simpler, swifter and more continuous. It grows more automatic, and ' algebraical ', and passes like a swift movement in consciousness. All this implies Economy of Volitional Activity ; motivation is curtailed and motives are economised.

Here, however, we are not dealing with Economy of Motives, but with Economy of Motive-Force. By this we mean, that when motives are strengthened or reinforced, to a certain degree, the reaction or choice follows automatically; there being no further wastage of Motive-Force.

This section follows, as a logical consequence, of our Hypothesis of the Critical Point. If the reaction follows, immediately, when the motive reaches the required strength, there must evidently be an Economy of Motice-Force.

Still, the point calls for some explanation, and some examples. Let us take, for instance, the following introspection, N° 53 of S^2.

I preferred Z for itself. L did not come into the choosing of Z. That is, because Z is so good. If B or V were beside L, L would have entered into the choice.

Here we see that Z of itself was able to reach the Critical Point without any strengthening—there was Economy in the fact that L was not taken into account. Had Z been less strong, like V or B, L would have been taken into account and strengthening would have become necessary.

Economy of Motive-Force is clearly seen in cases where Subjects, without allowing motives to develop, register their choice ' in virtue of implicit reasons ' ; or ' being conscious of being able to define the values in detail '. Here motives were not allowed to grow stronger than was necessary—the reaction intervened and cut off further development—motive-force was Economised.

In many cases subjects were quite startled at the manner in which the reaction happened. They had been, perhaps, dwelling on a positive motive, when suddenly, they reacted without being able to explain why. Usually, and this point is an important piece of evidence for our Hypothesis, some mental fact, a judgment, a half-formed decision, came to add itself at the last moment, to the consideration of the motive.

I chose J (after a long hesitation) with the idea, *at the very moment of the choice*, that J was better. Hardly had I the glass in hand, than I was convinced that I was deceived. Again I repented of having taken it, of having been deceived. I dont know why I should have preferred to have taken the other.

Here the motive for J, strengthened by the sudden, unfounded thought, that ' it was better than the other ', seemed *just to have been able to reach* the Critical Point. The reaction at once followed. Immediately after, the choice was repented of.

Again subjects often said, « I had hardly decided, when the reaction occurred » This would imply, that the selection of a motive, strengthened it sufficiently, and at once, came the reaction. The frequent cases of ' inexplicable choices ' ; and many choices which followed instantaneously on the perception of a very good, or a very bad substance, point to the same conclusion.

We are aware that these phenomena could be inter-

preted in the sense of ' temporal determinations to react' but we believe that such an explanation does not suffice.

For instance in cases of Hesitation, it is evident that the ' temporal determination ' to react quickly is not obeyed. On the other hand, immediately a motive is strengthened to the Critical Point, the reaction follows, not in virtue of the ' temporal determination ' which is no stronger then, than at any other time, but in virtue of the Economy of Motive-Force which we have explained, and which is an inherent law of the Will. In ordinary life, where there is no strict instruction ' to react quickly ', that is, no ' temporal determination ', we still feel an impulse to make our choice at once, when the winning motive has reached a certain strength. On certain occasions, however, the reaction seems to result from the joint effect of ' temporal-determination ' and Economy of Motive-Force. This is the case in choices which are identical, or practically identical in content, and which are identically in duration—to the thousandth of a second. Here it would seem that, the motive reached the Critical Point, and the reaction occurred owing to a certain mental habit which we have described as a habit of motivation—Motivation Tracks. The ' temporal determination ' counted for something, as did everything else implied in the instruction.

Critical Point Hypothesis and the Genesis of Feelings.

During our experiments Subjects frequently mentioned having experienced a feeling of pleasure on finding a strong motive. They, so to speak, looked forward with pleasure to making the choice since they knew they had a good motive in their pockets. « Feeling of pleasure, because I knew I had a good motive for this choice ». A kindred feeling, or the same feeling ex-

pressed differently, appeared : « On seeing Z I had a feeling of pleasure because I knew that my choice was immediately determined. » « Saw K, feeling of profound pleasure, because, with that, the question was solved. » « Feeling that my choice was practically made. » Again, to take an instance from S^1, N° 58.

« Read Z. and B. together. Z remained at focus of consciousness. Immediately had consciousness, « oh! its this one » with a feeling of certitude ; *a feeling that there is no doubt about it.* »

These feelings indicate an internal anticipation of a swift touching of the Critical Point. Indeed, fairly often, feelings of ' easy choice ' and ' swift choice' were had, but they were concomitant with, rather than anticipatory of, the touching of the Critical Point.

When the Critical Point was reached, seemingly against the wish of the subject, or at least in an unexpected way—feelings of regret were experienced. In cases where the concurrence between two motives was fairly close, and where, so to speak, a creditable victory was won, feelings of pleasure were at times felt—thus S^2, N° 77, says ;

« The agreeable quality of K gives me more pleasure because I can prefer it to T. The other preferences pass more simply » (1).

Evidence for the Critical Point Hypothesis.

It seems quite in keeping with the common sense view of things, that the Will yields when Motives reach a certain strength. Moral compulsion means nothing else than this. People, for instance, terrorised into doing something, are not accounted responsible. We do not deny that some Wills have a power of resistance, which, it may be, is practically invincible, but this is

(1) S^2 regarded both K and T as good. The K—T choice was always *closely contested*.

not usually the case. The Critical Point for the motives of many people is fairly low.

Again, it is admitted among Psychologists that a degree of value can be so fixed by the instruction, that when it is reached, the Subject reacts.

L'action d'une tendance déterminante créée par l'instruction peut être conditionnée par « la valeur » en ce sens que la venue d'un phénomène (le choix) peut être subordonnée à la présence d'un certain degré de valeur fixé dans l'instruction, comme elle peut être subordonnée, à la présence d'une propriété logique (1).

We maintain nothing more, save that, according to our view this zone, on the arrival at which the reaction occurs, is not fixed by the instruction, but by the very nature of the Will itself.

Again, such an hypothesis as ours, is required by those who hold, as we do, to the Unicity of Motive. Motives are not accumulated as a bunch of brambles, or platted together like so many cords. To say that we act for two or perhaps three motives, is to imply, that the Will has, so to speak, a wide breast into which the three motives are simultaneously plunged like swords. The Will is no such thing. It is spiritual, and a unity, — unilateral if the word may be pardoned — and is moved by the one and only motive which it assimilates, and in the sense of which it tends. This one motive may have been *strengthened* by other motives ; but that is quite different form affirming that the Will acts from more motives than one. The Will is neither a boat, to be pulled by many ropes, nor a car to be pulled by many horses.

Admitting then, that the Will acts from one motive when it acts, and admitting as it is evident, that there

(1) *Le Choix volontaire*. General Summary.

are many modes of Strengthening Motives, it remains still to be shown that the Will yields automatically (that is, of course, in ordinary circumstances) when the motives reaches a certain strength, determinable by certain inherent principles of economy of effort.

We cannot hope to prove this by any other means than a general appeal to the facts brought forward in this chapter, and a metaphysical—« *ça convient* ». For instance, the point referred to more than once, that, when a motive had been strengthened, at a certain instant, without any apparent reason, the reaction occurred ; seems to us to postulate strongly such an hypothesis as ours.

The Measurement of Motive-Force.

We do not pretend that it is possible to measure Motive-Force, as accurately as Physical-Force. Nor do we pretend, that apart from favourable conditions, any serious attempt at such measurement can be made. But, we believe that with such data as were at our disposal in the present researches, it is possible to guage fairly accurately the relative strength of the motives which occurred.

In the present researches the same motives reappeared several times, under identical conditions. Occasionally, the same choices, were repeated in a manner identically the same—so much so, that the duration was the same to the thousandth of a second. Every detail of the motivation, and every phase and form of the motives were so observed, that facilities for measurement, not usually to be had, were at our disposal.

The problem of the measurement of Motive-Force is, nevertheless, so delicate and so complex, that in spite of the opportunities afforded by our method, we can only hope to ' measure ' some of the motives, and that, in an imperfect way.

We shall confine ourselves to the hedonic motives, which were the normal type in our researches; such for instance, were the motives for K or Z.

We propose too, with a view to rendering the problem less complex, to make the following suppositions.

1. That the Motive-Force of the same motive (in the same choices) remained constant, throughout the experiments. 2. That subjective estimates of Motive-Force, as given in the introspections have the value of objective evidence. 3. That the hedonic motives, with which we are dealing, were purely hedonic.

We base ourselves on the 574 experiments of the second series. As each subjects' motives must, of course, be considered apart, we propose to deal with those of S^2, the number of whose experiments in this series was 224. As data for this research, we have :

1. The Actual Results of the various choices made.
2. Reaction-Times.
3. The Introspections in which Motive-Force was spoken of, and motives compared.
4. Cases of Hesitation and Inconsistency, arising from equivalence of values.
5. Certain aspects of our ' Critical Point ' Hypothesis.
6. Certain aspects of the Relativity of Values.

The Actual Results of the choices made by S^2 give us at once, a working Scale of Values—they are as follows :

1 Scale of Values based on *Actual Results of Choices.*

	K.	T.	Z.	V.	J.	B.	C.	L.
Number of Times Presented	56	56	53	55	56	55	60	57
Number of Times Chosen	51	46	43	31	22	21	8	2

This gives the following percentages, representing the actual efficiency of the forces of the motives for these different substances—it also represents, as we

shall see from our chapter on Hedonism, the scale of Hedonic Values.

K. 91.7 %.	T. 82.1 %.	Z. 81.1 %.	V. 56.3 %.
J. 39.2 %.	B. 38.1 %.	C. 13.3 %.	L. 3.5 %.

2. We next determined the mean-reaction time for choices resulting in each one ot these alternatives (1). As we were concerned with hedonic motives alone, we omitted choices in which the motivation was non-hedonic (2). We found that a correlation existed between the quickness of the reaction and the hedonic value, or motive-force of the alternative chosen.

2 Scale of Values based on the *Reaction-Times*

This enabled us to formulate a principle of considerable importance, holding, of course, only for choices made under conditions such as those of our experiments ; viz.

That the quickness of the choice-act, is in direct relation to the motive force of the alternative chosen.

This principle, which was verified in the results of all three Subjects, enabled us to approach the problem of the measurement of Motive-Force with considerable confidence. It was, as we shall see, liable to variation from one source, which we were able to determine definitely. In the case of a choice, where one motive is slightly negative, and the other strongly negative e. g. as J—C, the slightly negative motive is chosen with great swiftness, on account of its Relative Value. We shall deal fully with this matter in our chapter on the Relativity of Motives. In the list now to be given, it will be noticed that J, for the reason just given, has an unduly low Reaction-Time.

(1) All the experiments of S² *which resulted in the choice e. g. of K*, were taken together ; the mean reaction time being then determined.

(2) See our chapter on Hedonism.

3 Correspondence of the two Scales of Value.

Percentages showing the Hedonic Value of the motives.		Mean Reaction Times.	
K	91.7 %	K	761 sigma
T	82.1 %	T	803 »
Z	81.8 %	Z	909 »
V	56.3 %	V	970 »
J	39.2 %	J	827 »
B	38.1 %	B	991 »
C	13.3 %	C	1300 »
L	3.5 %	L (1)	— —

We see that, save in the case of J, the two scales correspond—and as we have said, the results for the other Subjects showed a like concordance. We have then here, a scale of Motive-Forces, to aid us in a further determination of strength of the particular motives.

4 Scale with respect to the *Critical Zone.*

An interesting confirmation of this scale of Motive-Forces is given by reference to our Critical Point Hypothesis.

There were, we pointed out, cases in which motives of themselves, without any apparent process of strengthening, could reach the Critical Zone. Other motives *always* needed to be strengthened. Finally, two motives, L and C invariably resulted in the sudden strengthening of the antagonistic motive : in the words of S^2: « C gives me always, an immediate preference for what is beside it. »

Now, comparing the cases in which there was, or was not, a strengthening of motives required, we find, that for S^2, K, T, and Z were able of their own proper force to reach the Critical Zone. At times, they too were strengthened, but normally, they could of themselves reach the Critical Point. On the other hand V, J, and B, invariably required to be strengthened.

(1) As L was only chosen twice its ' Mean Reaction Time ' has no value.

Their motive-force was, of itself, too weak. L and C never, save when one was pitted against the other, reached the Critical Point—they *sank* invariably.

This consideration, then, gives us a third Scale, which concords with the other two.

K, T, Z — Motives having sufficient force to reach the *Critical Zone* alone.

V, F, B — Motives requiring to be Strengthened.

C, L — Motives never reaching the *Critical Zone*, save when one is pitted against the other.

5 Confirmation of the Scale.

Another confirmation arises from the consideration of a possible objection. This objection might thus be formulated. « If the choice is swift in proportion to the value or force of the winning motive, it would seem that the nature of the value of the rejected motive counts for nothing? But this would imply that motives were independent of one another, whereas it was said that they are extremely relative, both to one another and to the general nature of the motivation ».

In order to find an answer to this difficulty we examined various cases, where two strong positive motives were opposed—where there was, so to speak, a conflict of values. We prescinded from cases where Hesitation occurred, for, as we shall see, serious motivation disappears once Hesitation comes. We found in most cases, that, contrary to what might be expected, the choices were swifter when the rejected alternative was itself good, than when it was bad. This result was confirmed in an interesting way by introspections, such as that, in which S^3 said that, « he took K (his favourite) with all the more pleasure (and, *de facto*,

with all the more speed) because T, another really good motive, was against it ».

Again S^2 says : « I chose K as though its greatest concurrent was beside it » meaning thereby, that he chose it with all the more energy.

These facts lead us to formulate another principle, correlative with that already announced ; holding only for choices made under conditions, like those of our researches : viz.

That the quickness of the choice-act is also in direct relation to the motive force of the rejected alternative.

This principle was, however, subject to variations from many sources. Swiftness in choosing, due to ' Relativity of Values' caused many exceptions. Little help towards the measurement of motive-force could be thereby gained. Nevertheless some indications were afforded.

Other methods of Measuring Motive-Force. a Analysis of Feelings.

We propose to sketch briefly two other methods of measuring Motive-Force ; that, by means of the Analysis of Feelings connected with Motives, and that, by means of Ratios.

Certain feelings occur when a very strong motive appears unopposed, or at least without a serious rival —such feelings were usually described as ' feelings of certitude' or ' of evidence '— they were pleasureable in tone. On the other hand, when no strong motive appeared, a feeling of tension, and often of discouragement was experienced. The ' tone ' was then painful. Feelings of various kinds and intensities, accompanied the different phases of motive-conflict, so much so, that it seemed to us, were sufficient material to hand, the analysis of such feelings, would be a possible solution of the problem of motive-measurement. Doubtless the

task would be delicate and difficult, but it would likely prove fruitful. Such a method, too, would be applicable in some degree, to the motives of ordinary life. Indeed, in a certain way, we judge the force of the motives acting on this or that man, by his various manifestations of feeling while under the assault.

b Measurement by means of *Ratios*.

From a consideration of the Scales of Values already given :

K	T	Z	V	F	B	C	L
91.7	82.1	81.1	56.3	39.2	38.1	13.3	3.5
761	803	909	910	827	991	1300	—

we should expect that, in terms of Motive-Force, certain proportions should hold. For instance, K : C :: Z : L —that is to say, bearing in mind that the Motive-Force for K is indicated by 91.7, Z by 81.1, C by 13.3 and L by 3.5 ; we should expect the proportion K : C :: Z : L, to hold.

Again bearing in mind that, according to the two principles which we formulated, the Reaction Times may (under the conditions of our researches) be regarded as representative of the proportion existing between the Motive-Forces in the choice, we should expect, that, in choices, where the ratio or proportion between the Motive-Forces is equal (e. g. the choices K-C and Z-L, for as we have just seen (K : C :: Z : L) the Reaction Times should be equal.

Taking the mean reaction time for the K-C choices we get 886 sigma, and for the Z-L choices we get 866 sigma — hence, our expectation in this case is realised (the difference of 20 sigma being negligible). Hence the proportion K : C :: Z : L which is in terms of Motive-Force, has been justified by an appeal to the Reaction times of the choices K-C and Z-L.

In a similar manner many other proportions were

justified ; not merely for S^2 but for S^1 and S^3. In many cases, however, owing to disturbing causes of various kinds, as the law of Relativity of Motives, the proportions were not provable in the manner explained. This method, as a method of Measurement of Motive-Forces, can only have theoretic interest ; its practical utility, needless to say, is little or nothing.

From an examination of the scales of Motive-Force given, it will be noticed that T and Z, and B and J, appear as approximately equal. For T the *percentage* is 82.1 for Z 81.1 while for B 38.1 and for J 39.2. True the Reaction-Times corresponding do not maintain the same proportions, but that fact seems due to the troubling effect of Relativity.

Introspective Evidence about Motive-Force.

Some interesting evidence is found in the introspections of S^2 with regard to equivalency of Motive-Force in these cases. In the T-Z choices, and in the B-J choices there are hesitations, inconsistencies, avowals of the difficulty of choosing between things so equal in value etc. For instance, of the eight B-J choices, J is chosen twice and B six times. J was chosen a third time, but at the last moment the decision was reversed. Of the T-Z choices T was chosen three and Z four times : two quotations from these experiments will show the equivalence, or quasi-equivalence of T and Z.

Saw T at right, then Z at the left, then T at right, then came my preference for Z while still seeing T. The experiment passed, as it were, with a feeling of indecision ; when all was finished I had a strong feeling of discontent, which was not caused by the badness of the substances but because I had a difficulty to decide for one the other.

Again « I saw T first and found it good ; then Z. I considered both as good ; then I came back to T, then to Z, which I preferred... I always considered Z and T as tastes similar with respect to quality, but Z is more intense. T appears as something more feeble.

We see from a general comparison of the introspections of S^2; 1. that he always considered K as *excellent* —he has a strong hedonic attraction for K—« In that attraction for K, he says, there is the memory that K is always good... it becomes as it were a habit to choose K... it is an easy choice for K, etc. » ; 2. that he always regards C and L as bad, disgusting, as strongly objectionable ; 3. that V seems for him, neither good nor bad ; it lies on a *neutral zone* ; 4. that he dislikes J and B ; they are distinctly negative, though less so than C and L (they seem for him equally negative) ; 5. that Z and T are positive motives, but less strong than K.

To draw up, then, a final Scale of Motive-Force for S^2, we place V as *zero*—as a *neutral zone*. We are justified in this 1. by introspective evidence, e. g. where S^2 says « there was absolutely no reason which pleaded for or against V. » 2. by the fact that V is chosen and rejected almost an equal number of times —the percentages of its victories with respect to its defeats is 56.3 %. Final Scale of Motive-Force.

Next we place K as the strongest motive, and represent its force, *symbolically*, by + 5. Our Final Scale is then :

K	+ 5
T, Z	+ 2
V. — O / O — Neutral Zone	
J, B	— 2
C, L	— 5

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This scale is simply meant to express, symbolically, the evidence, which we have been able to accumulate (1), regarding the Motive-Forces of S^2.

We do not flatter ourselves that this enquiry into possible methods of measuring the Force of Motives, can have any but a purely theoretic value.

(1) S^2 said in an introspection in the third series « il est une chose acceptée que B et J se valent au point de vue de leur valeur ».

CHAPTER V.

MOTIVATION TRACKS.

The Will as a *Process.*

The Will is a process, vital, immanent, dynamic. « Not a permanent thing », writes Wundt, « but a rising, progressing, subjective process ». It is a process to be found in this or that concrete Will-Act, and not elsewhere. Now it is a decision, now a consent, now a choice. It is in all cases a synthesis ; it has its moments — its rise, and its fall — it has, above all, its proper unity just like a process of inference.

The choice-process, with which we are here concerned, is not something purely psychical, nor yet purely physical. It is not like an abstract thought, nor is it like a sensation or a memory image. It is structural, that is to say, it holds together its parts ; and these parts constitute the whole. The choice-process too, has its feeling tone ; it is pleasant or painful ; it is smooth and continuous, or jerky ; it is swift and easy, or slow ; it varies too in degree, sometimes being « a typical choice, a real choice » and at other times « hardly a choice at all » (1).

Though, it may seem strange, we are conscious in choosing, of the general nature of our choice-process. We are conscious that for different choices the process is different and for the same choices, the same. We are aware when the same process is repeated and we

(1) We quote the words of Subjects in these paragraphs.

feel « *that our mind is running in a kind of mould* », « *or passing along a curve or beaten track* ». We are conscious too, that when we have made several choices of like kind, « there is a general type of motivation which results from practice ».

Wundt, writing of Volitional Processes says, that « the only way in which a thorough psychological investigation of them can be made is through *experimental* observation ». He is doubtless right in this, but the task which he imposes on psychologists is by no means easy. How are we to observe Volitional Processes? He suggests himself that we should do so by means of simple reaction-experiments. Such a method however is utterly inadequate. Nothing can be learned of the Will, apart from systematic introspections of Will-Acts.

But even with systematic introspections how are we to study Volitional Processes?

Clearly the task is not easy.

The Starting-Point of the Inquiry.

It was to some extent by chance that we hit on, what must be considered, as a satisfactory method of studying Will-Processes. We were led to investigate a peculiar phenomenon which occurred in our preparatory series. This investigation brought us afield, and finally a method for studying Will-Processes presented itself. Our first investigation was based on the data of our *preparatory series*—it was made early in November, 1910. Our next investigation was on the data of the first part of our *second series*; it was made the first days of 1911. Later on, in 1911, we completed these inquiries (1).

(1) In this chapter we reprint without change the notes we made on these occasions; this method of exposition will be the simplest, and perhaps interesting from the fact, that it will reveal the gradual evolution of our own thought on the matter.

I.

Notes on ' Motivation-Tracks ' from data of Preparatory Series. Nov. 1910.

During the experiments we felt very often that the different subjects had quite different habits of Motivation. It seemed too, that each subject had, for each type of choice a certain curve or line of movement which he unconsciously and inevitably followed. A peculiar incident in the 29th and 30th Expts , of S^4, lent a certain show of plausibility to this hypothesis. Further analyses of introspections, presently to be related, added still more probability.

We do not wish what we call Motivation-Tracks to be understood in a materialistic sense. Nothing is further from our mind. To do so, would be to formulate a metaphysical theory without evidence. We merely wish to give a special name to a peciliar phenomenon of Volition, just as the « Quadrille des Centres » named a peculiar supposed fact of cell division.

The incident of interest in the 29th and 30th Expts , of S^4, was as follows. The 29th Expt. proposed the choice : B—F, and B was taken, after the following stages :

1. Feeling of disappointment; B unknown.
2. Looked for glasses, saw F first.
3. Felt I did not like and did not want F.
4. Looked at B; repelled by its appearance.
5. Hesitation. B unknown and therefore slightly interesting.
6. Took B, a motive of Rarity prevailing.

Now the next, the 30th Expt., presented exactly the same features in every detail, with the exception that A

took the place of B. This note was added : « *I felt my mind was following a form of curve.* »

The feeling was peculiar, vivid, unquestionable—unlike any feeling hitherto experienced. It left the subject in a state of considerable emotion. It was not so much a feeling of brain mouvement, as a conscious, continuous, easy psychical effort, along a rail or beaten track.

In Experiments 29 and 30, the choice, as we have seen, was different in each case. The thought immediately presented itself—*if the two choices had been the same, would not the same phenomenon have occurred*, and perhaps in a manner more accentuated ?

The Method of Investigation.

The phenomenon seemed worth investigating and a method of investigating it presented itself at once, and, as we shall see, brought confirmatory facts to light.

The method was to examine all the choices of the same nature. Thus for S[1] the choice A—B was presented four times—13th, 30th, 43rd, 51st Experiments.

13, AB	took	B	Reaction Time	4136
30, AB	»	A	» »	3618
43, AB	»	A	» »	3684
51, AB	»	A	» »	2014

N. B. It should be remembered that these were experiments in the Preparatory Series. Hence the Reaction-Times were very long.

Number 13 cannot be counted, as both A & B were unknown ; B being chosen for a motive of Rarity after Hesitation. The other three choices, occurring at widely separated intervals, presented the following remarkably interesting features, which seem to support our Hypothesis.

A was chosen each time, for the same motive, coming from the same source, after the same preliminary movements. Taking 30—as an example—I mark with letters a, b, c, d, e, etc. different stages.

A—B appeared.

First moment (a) did'nt know anything about them. (b) Impression of knowing A without remembrance of its taste. (c) B awakened nothing. (d) Then, after a while, I looked at glasses; beginning from left; saw A, recognised its place, its position, (e) then looked at B. (f) Remembered at that moment « A *is Sugar* » (g) Immediately let go button mechanically and drank.

Now, in the three experiments 30, 43, 51, every one of these stages a, b, c, d, e, f, g, are reproduced. A at first awakens nothing, then the glasses are looked at from the left, A is remembered as « Sugar », the word comes, the reaction follows immediately, « *took it at once and drank it.* »

In no one of these three is there hesitation, or discussion of motives, or feeling of repugnance for B, or indeed any phenomenon which deviated from the curve of choice formed in Experiment 30.

It would seem as though in reality the mind followed in the furrow already ploughed.

A case, still more interesting, of the *Motive Curve* is given in the choices C—F. This choice, for S^1, occurred five times (12, 31, 38, 54, 63), presenting (except in the first, N° 12, where the substances were unknown) the same striking features.

			Reaction Time	Motive
12	C F	took F	3197	accidental
31	C F	» C	2686	« C not so bad as F »
38	C F	» C	3199	— —
54	C F	» C	741	— —
63	C F	» C	1534	— —

In each case, F was recognised as *bad*; on looking at glasses, C occasioned Judgment, « C is salty », followed always by comparative Judgment of Value; « But C is not so bad as F »; a mechanical or impulsive reaction followed.

In these experiments too the Evolution of Motivation was remarkably exemplified. As an example :

13. F appeared as salty. As not yet well-known.

31. Conscious F was Ammonia. *Word* « Ammonia » and letter F made me know it was unpleasant.

38. Looked at F—consciousness « It's that bad thing » Words not there save word *Bad* ; then tendency to react.

54. Looked at F—immediately conscious that it was bad. Word *Bad* perhaps there.

63. Immediately after seeing F, conscious « Then it's the other. »

We see clearly here that F appears in a more and more abstract way. The word « Ammonia » and the judgments disappear. The mind economises effort. The word « bad » was only vaguely present in 54. In 63, F suggests an immediate reaction, no words appear at all. The letter F is symbolic of a bad thing. This evolution of form, in the motive for F, traceable in these five experiments. is in no way inconsistent with our hypothesis of Motivation Tracks. It even completes it. While maintaining that in similar choices the mind goes through similar manœuvres, we maintan that, at the same time, the ultimate manœuvres manifest an economy of effort not apparent in the first.

For S^4—the choice A—B which occurred as 15th, 22nd and 29th Expts., were practically identical. In each case A was chosen, as « the lesser of two evils », after a hesitation ; and by an effort to overcome repugnance. In each the appearance of the card caused an unpleasant feeling, which was accentuated on seeing the glasses.

The choices C—F, for S^4, occurred as 14th, 26th, 45th, 57th. The first three were identical, as regards feeling of pleasure on seeing card ; vague feelings that F was unpleasant ; impulses, hesitations, emotions and final automatic taking of C. The fourth choice, 57th,

was what we have drawn attention to as a *Caprice* choice.

The Subject felt repugnance and disgust for both glasses and for the experiment, and F was taken for a purely capricious reason.

It would seem then, that, when confronted with certain circumstances, the Mind acts spontaneously, in a definite characteristic manner. Just as birds fly round their cages in certain ways, on certain similar occasions, seeking vaguely for an exit, the Mind seems, normally, to have definite lines of action for definite occasions.

II.

Notes on 'Motivation-Tracks' from data of the first part of the Second Series. Jan. 1911.

We now come to what we consider, rightly or wrongly, to be the most interesting fact brought to light by our experiments. We have already spoken, in our *first series* of Motivation-Tracks. The *second series* supplied additional and much stronger evidence for what we then felt justified in affirming.

Having analysed in minute detail, all the experiments of each Subject we recommenced our work, and placing in groups, in chronological order, *like* choices, we once more went through the process of analysis, to secure still greater accuracy.

Each group of choices presented the following appearance—e. g. for S^4.

N° OF EXPERIMENT.	CHOICE	ALTERNATIVE CHOSEN	HIPP. TIME	VERNIER TIME	ANALYSIS
23	Z—K	Z	860	34	
31	Z—K	Z	687	21	
58	Z—K	Z	682	25	
79	Z—K	Z	457	23	

The space devoted to the analysis was thus further divided, for example :

STRUCTURAL PHENOMENA	PSYCHICAL PHENOMENA			
	FEELINGS	PRESENCE OF VALUE	JUDGMENTS	VARIA
1 Saw Z first	—	—	—	
2 Then Saw K	—	—	—	
3 Saw Z again	—	—	—	
4 And took Z	—	—	—	

This method brought clearly to light quite a number of interesting facts, and bore out the truth of our remarks about automatisation.

The same choice, at different stages of evolution, was thus readily examined; and the individual characteristics of the three subjects might easily be seen. Coincidences of a remarkable nature became noticeable and invited investigation. It may be well to give a concrete example.

In the list of choices that we have just given ; if the Reaction Time columns be looked at, we see a interesting gradual lessening of the Reaction Time.

In practically all the groups of choice this gradual quickening was seen. Sometimes, however, the same choices, though a week or more elapsed between them, were realised in practically the same time. In the case given we have seen how only, 5 sigma, 1/200 difference of time, existed between S¹'s 31st and 58th experiments. So small a difference of time might well be due to an error in the Chronoscope. Still we are not driven to make this hypothesis, for in another example we found a much more extraordinary coincidence :

The choice was C—B, for S¹.

N° of Expt.	*Date*	*Reaction Time*
12	1 Dec.	869 sigma
33	5 Dec.	471 »
75	16 Dec.	466 »
96	20 Dec.	471 »

It is quite a remarkable coincidence that so complex a process as a choice act could be gone through three times, twice in 471 sigma, and once in 466 sigma (1/200 of a second quicker). When we consider how minutely small is 1/1000 of a second ; and how difficult it is to avoid changes of conditions, the slightest of which would have affected the Reaction-Time by many, perhaps 100 sigma, we cannot but be surprised at this result. That it was not a mere coincidence, but due in great part, to the exactness of our method, we can show by appealing to the following figures. We examined all the other groups of like choices and found in many other cases small differences in the reaction times, such, for instance ; (in figures indicating sigma) 1, 5, 5, 5, 6, 7, 8, 9, 9, 9, 12, 13, 15, 17, 20, 22, 26, 29, 30, 31, 33, 36, 36 etc. Indeed, more than 69 times (in the 273 experiments of this part of the *second series*) the

difference was less than 100 sigma, or 1/10 of a second (1).

Being struck by the closeness of the Reaction Times, we naturally subjected to a careful analysis, the data given in the introspections, with a view to discover the explanation. Very soon we found :

1. A striking resemblance between the choices of which the durations were so close.

2. A gradual diminution of the Reaction-Times.

3. A gradual diminution in the number of Psychical Phenomena recorded ; which diminution continued step by step, with the diminution of the time duration.

We found too, the desirability of distinguishing between, what we call the *Structural Phenomena* of choice ; the actions of « looking at one », « then passing to the other », « then going back to the first », etc., and the purely *Psychical Phenomena* of choice ; such as judgments, valuations, etc.

It occurred to us then, to take a few, normal series of like choices and classify them in a semi-schematic manner. The following example will show what we mean.

In it the judgments, etc. are written in the briefest form possible ; though the contractions are faithful expressions of the original form. The sign + means that the substance was valued as more or less *good*, the sign —, as more or less *bad*.

Experiments N° 28, 42, 63, 84, and 90 of S^1. They took place respectively on the 3rd, 7th, 12th, 19th and 20th December 1910. The choice was in each case J—L, and J was chosen each time.

(1) This fact has already been referred to in our chapter on method.

Table showing the five J—L choices of S[1].

REACTION TIMES	STRUCTURAL PHENOMENA	PSYCHICAL PHENOMENA			
		FEELINGS	PRESENCE OF VALUE	JUDGMENTS	VARIA
1161	1. Saw J. first 2. Looked at L 3. Looked again at J 4. Took J	Pleasure and certitude	+ — +	« not this » « that's right »	Void
763	1. Saw J. first 2. Looked at L 3. Looked again at J 4. Took J		? — +	« It's the other »	designation
772	1. Saw J. first 2. Looked at L 3. Looked again at J 4. Took J.		+	« It's the other »	Presence of Word
413	1. Saw J. first 2. Looked at L 3. — 4. Took J		+	« It's possible » « It's well »	
493	1. Saw J. first 2. Looked at L 3. — 4. Took J.			« It's the other »	Void

Explanation of the Foregoing Table.

This table holds apart the '*structural*' from the *psychical* phenomena of the choice-process in each case. It will be seen, on reading the 2nd column, that the same '*structural*' phenomena recur in the same order. They tend, too, to persist. It is only in the fourth experiment that a *structural* phenomenon disappears—that of seeing J for the second time. This became unnecessary—it dropped out, atrophied.

With regard to the *psychical* phenomena, the feelings disappear at once. They only occur in the first experiment. We have already pointed out that choices quickly become abstract and « algebraical », and that imagery, associations, and feelings quickly disappear. In the fourth column we see the gradual disappearance of « presences of value ». In the fifth column we find the main phenomenon, of the experiments, repeating itself in slightly altered forms—it is the judgment : « not this » which evolves into « it's the other ». This phenomenon is « *the psychical backbone* » of the processes, it has not disappeared even in the fifth experiment. In the two J—L choices of S^1, in the 2nd part of the 2nd series, it reappeared. We have no evidence to indicate that it would have disappeared, even if the experiments had been continued indefinitely.

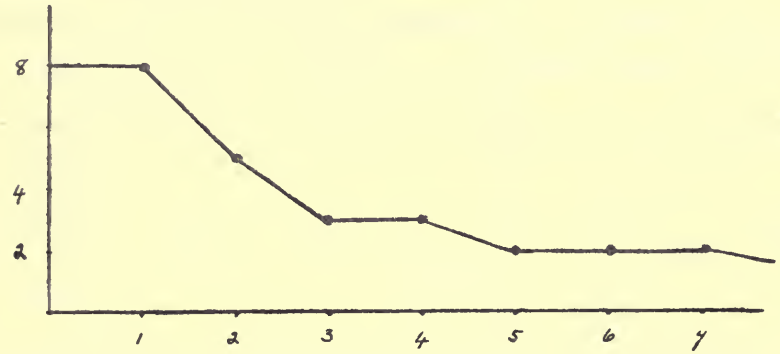
In the fifth experiment, we notice a 'void' occurs, at the point where in earlier experiments phenomena used to occur.

By counting now, the Structural, and Psychical phenomena (as far as such phenomena may be counted) we find.

	Structural phenomena	Psychical Phenomena
1st Experiment	4	8
2nd »	4	5

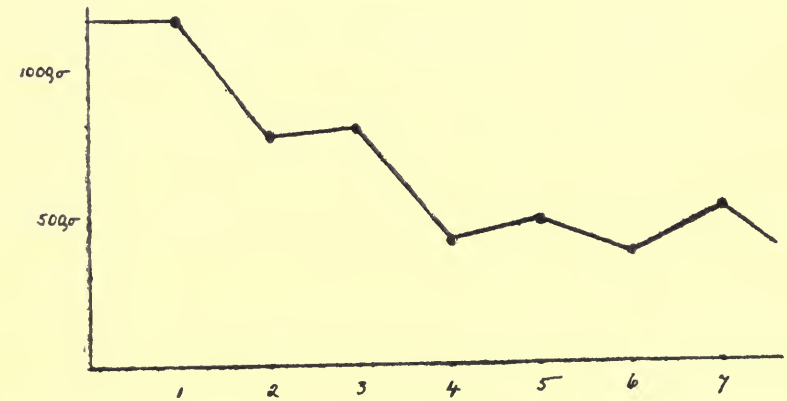
	Structural phenomena	Psychical Phenomena
3rd Experiment	4	3
4th »	3	3
5th »	3	2

This result gives us the following curve showing the gradual disappearance of the *Psychical Phenomena* (1).



Curves Showing the disappearance of the Psychical Phenomena and the diminution of the Reaction-Time.

The curve for the Reaction-Times of these choices is as follows (1).



We shall now take an example from the experiments of S². The choice was Z—J. Z was chosen on each

(1) We have continued the curve to represent *two subsequent* J-L choices of S².

occasion. The experiments were the 26th, 47th, 61st and 89th of S^2, and occurred on the 2nd, 9th, 12th, and 19th of December 1910, respectively.

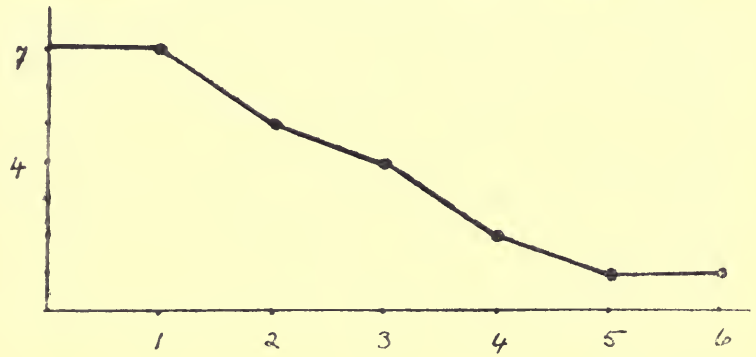
Table showing the four Z—T choices of S^2.

REACTION TIMES	STRUCTURAL PHENOMENA	PSYCHICAL PHENOMENA			
		FEELINGS	PRESENCE OF VALUE	JUDGMENTS	VARIA
1260	1. Saw J. first 2. Saw Z 3. Saw J again 4. Took Z	Doubt. Rhythm.	+	« This is better »	understood understood fixed
1318	1. Saw J. first 2. Saw Z 3. Saw J. again 4. Took Z	Astonish-ment.	+	« The other is better »	understood understood
980	1. Saw J 2. Saw Z 3 — 4. Took Z		+	« better »	Examined Examined
971	1. Saw J 2. Saw Z 3. — 4. Took Z (brusquely)			« Knew it's value »	Hesitation

By counting now, the Structural and Psychical Phenomena we find :

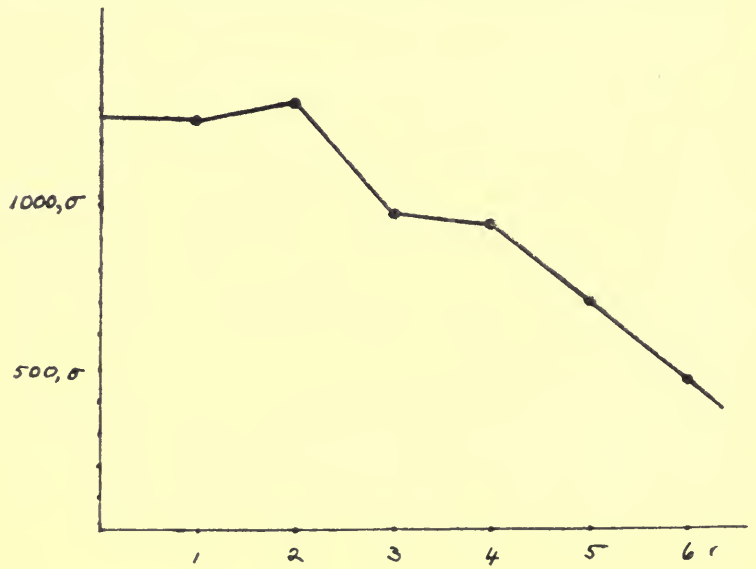
	Structural Phenomena	Psychical Phenomena
1st Experiment	4	7
2nd »	4	5
3rd »	3	4
4th »	3	2

Drawing a curve, as before, to show the gradual disappearance of the Psychical Phenomena we have :



Curves Showing the Disappear-ance of Psychical Phenomena and the Diminution of the Reaction-Time.

The curve for the Reaction-Times of these choices is:



We see in general the same marks of Evolution and Automatism as in the previous example.

Once again, one of the *physical* phenomena disappears, being unnecessary. Feelings and presences of value also disappear. One judgment, at first comparative in form, later on, a kind of direct valuation, persists, being in fact the main psychical factor « *the psychical back-bone* ».

Some special points are here worthy of notice. In the first two experiments the Subject felt that a second seeing of J was unnecessary, and tries to explain why, giving different reasons. *De facto*, it was unnecessary, and in the third experiment it dropped out, atrophied.

The Subject in the third experiment spoke as follows :

This experiment is for me the type of choice in general, calm, without repugnance or feelings of pleasure ; a reasonable choice. I took Z regularly without hurrying and without being slow. I should have had to go against a natural desire to take J. Like a choice in ordinary life; it would have cost me to take the worst of the two.

This analysis of the choice-process brings to light the following facts.

General Conclusions.

1. The ' Structural ' Phenomena tend to persist.
2. The ' Psychical ' Phenomena tend to disappear.
3. The Reaction-Time naturally tends to diminish.
4. The same choices repeat themselves *in practically the same manner*. Indeed, at times, three successive choices are word for word the same. So much so, that we feel justified in affirming that a habit of choice is formed—in the sense we have explained—that of Motivation Tracks.

Conciousness of the *Structure* of the Choice-Process.

The question now arose. ' Is the Subject ever conscious of what we have described as the *structure* of the Choice-process ' ? We believed the answer to be in the affirmative. Many of the introspections of the

Subjects pointed in this direction. We give some examples.

It came immediately to conscience that, that way of Reacting happened once before; as I think, for the same words.

Same process as last, flashed through my mind.

I was conscious not only of the matter of the process, but of the sameness of the form of the process.

Same as last experiment.

On seeing K, a certain habit of preferring it plays an important role.

Somewhat similar to this « Consciousness of Structure » is a phenomenon noticed, four times, by S^2, called by him *Brusquerie.* At first this phenomenon seemed to be muscular in origin, « a veritable opposition between the muscular sensations on seeing C and those for K »; « brusque passage from passive muscular state to state of movement », « the act of moving the arm seemed to me heavier, intenser, as though before the muscles were quite relaxed. »

Later on, however, S^2 while holding to the same term, was inclined to regard the phenomenon as *a brusque passage of the mind from one psychosis to another quite different;* there being no intermediary stages. In this light, a 'Brusquerie' consciousness, would be evidence for the theory we maintain that the '*structure*' as well as the 'content' of a choice process is conscious to the individual.

In addition, it may be well to notice, that Subjects are fully conscious of the manner in which they pass from one alternative to another—quickly, slowly, jumping, rebounding, tending to or from impulsively, being drawn by—are words used in descriptions of such passages. *Thus S^2, says, N° 33 « Then I passed to the other in a special way, which I will call « sauter sur l'autre ». Something different from the ordinary passage occurred. I felt C was well present to conscience, then B; there was no intermediate stage; from one to the other at once. »*

Significance of Motivation-Tracks.

To conclude this section on Motivation-Tracks, we may sum up its significance. Choices, when of the same kind, normally run along fixed lines. The general structure of the choice act, and the psychical contents remain the same, save for the inevitable evolution

and shortening in point of time and content. The motives which recur are usually the same, though in a gradually modified form—they evolve. These motives and the whole choice act, so to speak, pass along beaten tracks. We speak figuratively, to make the matter clearer, not to tinge it with a materialism or a determinism for which we see no shred of evidence.

III.

Final notes on Motivation-Tracks.

April 1911.

The notes which we have given so far, almost exhaust what we have to say of this matter. It seems clear to us, from the great number of groups of choices which we have examined, that in general, the same choices, when made under similar conditions, are made in the same way.

Additional Evidence.

For the moment then, we shall content ourselves, with adducing some more evidence for our theory, from the data of the second part of the second series, and from the third series of our experiments.

Subjects were frequently conscious of the nature of the choice-process as a whole : thus S^3 says « I was aware that my thoughts in orienting towards the choice were *running in the same mould* » and again ; « I recognised the process that I had gone through in the preceding experiment. I was conscious of that process as a whole. » On another, similar occasion, S^3 has a feeling of effort, together with a consciousness « that my thought had been knocked out of its ordinary groove ».

Frequently Subjects were conscious of the general resemblance between two successive choices, if the choice-processes happened to be the same, or nearly so.

An example will make this clear.

The two choices Z – L and K—B resembled strongly. Z and K were very good ; B and L were bad. In each case, recognition of the first, and a glance at the second alternative would suffice well. One should expect that the choice-processes would be very similar, especially for S^1 and S^2 whose tastes with respect to Z, K, L and B were much alike. Now, here is what happened.

S^1 made the choice Z—L, took Z ; made next the choice K—B, took K, and remarked « just like the preceding choice. »

S^2 next, made the choice Z—L chose Z ; then made the choice K—B, chose K, and, struck as S^1 was by the resemblance of the choice-processes, said « Identically the same thing ». This coincidence is of interest, in view of the fact, that neither Subject had the faintest idea of the import of his remark, or of what the other Subject had said.

It will be remembered that in the 3rd Series the Subjects were instructed to « Choose the worst and drink it. »

Motivation-Tracks in the Third Series.

This task was calculated to bring to light the presence of Motivation-Tracks. The Subjects had become accustomed to find the best, in various ways, according the the nature of the choice. At times it was by rejecting at once a bad alternative, at other times it was by seizing at once a very good alternative. The general process was, however, to find out the best *and take it*. This habit now persisted, even though the Subjects were instructed ' to choose the worst ' and even though they concentrated their attention strongly on the task.

They practically always *first* found out the best, just as they had done before. Next they rejected it and took the worst. At times, even, their habit of taking the best prevailed and they still took it. In an experiment of this 3rd series, S^2 says; « I pass almost always by the best ». Again, « the fact that K is better than B is more present to consciousness, than the fact that B is worse than K »—again, he says, « I did 'nt judge B

worst, but *I judged T to be best*; the choice is made in a certain way by habit, and it is hard to change ». He adds that for him the process is; « T is best .·. I ought to take the other ».

The strong persistence of the old habit of choosing, in the various choices, testifies clearly to the fact that the Motivation Tracks were well-beaten and familiar.

Continuity, and Jerkiness of the Choice-Process.

Subjects became more and more conscious of the continuity of the Motivation At times they spoke of its smoothness and evenness; at times of its jerkiness and unevenness. The latter feeling was quite characteristic.

For S^2 and S^3 alike it was a « brusque passage from one mental state to another. » Sometimes it was « an awareness of a contractile influence » in the mind. S^3 affirmed « I always know when it is there; it seems to be connected with a nerve process. »

S^2 frequently called attention to the difference between the passage, say from V to Z, and from C to K. « There is a difference between the passage from V to Z and from C to K. I am not repelled by V. I see V and the act of seeing the other, comes as a « Voyons l'autre aussi. » Again, he says; « These two perceptions of K and L are quite separate and apart. Pas de glissement de l'un à l'autre. »

All these facts tend to establish our theory, that, for the various choice-processes there is a characteristic structure, and a characteristic manner of motivation, which we call Motivation Tracks. They tend to prove too, that Subjects recognised the existence of such 'Structures', and are conscious of the differences between various choice-processes.

The Explanation of Motivation-Tracks.

Owing to the instruction, the Subjects had a tendency 1. to make and realise the choice, 2. to do so for serious reasons. The latter tendency meant that both alternatives should be seen. When the first was seen there was a tendency to see the second. These *tendencies*

explain to some extent, the reappearance of the same 'structural' form in the various groups of choices. To some extent too, the reappearance of the same motive, may be accounted for by Association.

Still, it seems clear, that what we have called 'Motivation Tracks' is not fully accounted for, either by Association or by Determining Tendencies. The perseverance of the chief psychic phenomenon (the backbone of the motivation), its evolution in form, the gradual disappearance of non-essential phenomena, the maintenance of the same choice-process in spite of its gradual evolution—the subjective consciousness that the mind was running in a familiar mould, or following a beaten path—these facts when considered together, exhibit volitional functioning under a new, and perhaps interesting aspect.

It is, of course, a fact which common-sense folk would be inclined to expect, that a great resemblance should exist between like choices made under similar conditions.

Still it is important that this fact should be scientifically investigated and, that the laws of the perseverance of the structural and psychical phenomena of the choice-act should be determined.

It is important too, we believe, to analyse what was meant by '*Volitional Process*'—in the case of choices, and to study the nature of the choice-process.

Advantages of Investigating Motivation-Tracks.

The investigation of Motivation Tracks possesses we believe a double utility.

First of all, from the point of view of scientific psychology, it furnishes a method, and perhaps the only method, for the investigation of the Evolution of Motivation—and, also, Automatism in Choices. We have already stated that there seems little to be gained from

the study of the evolution of *motives*. Motives cannot, save by a very arbitrary abstraction, be taken out of their setting, to be studied apart.

The Evolution of Motivation however may be profitably studied, in the manner indicated in this chapter. Its study will inevitably throw much light on volitional functioning.

The second advantage to be gained from the investigation of Motivation Tracks is, that it throws much light on the formation of habit and character. We shall return to this point in our last chapter. For the moment it suffices to say, that a much more lenient view might be taken of evil habits if the strength of Motivation Tracks was taken into account.

CHAPTER VI.

THE EVOLUTION OF MOTIVATION.

Motivation-Evolution and Automatism.

The motivation is the chief phase of the choice-process. If it is thorough, the choice is a good one. If it is careless or indecisive the choice is likely to be unsound. Whatever sense of certitude or satisfaction is experienced, in making a resolute decision, is due to the efficiency of the motivation which preceded it. A man of decisive character is one who has the power of quick and sure motivation, and who, having a definitely fixed and thoroughly understood scale of values, judges according to it.

Motivation varies in length and in quality. When a strange, unexpected difficulty occurs to us, our motivation is complex and long (1). When such a difficulty has reappeared many times, and we are familiar with it, our motivation is simple and short. At first, motivation is concrete and touches us closely, we seem to be absorbed in it, and identified with every phase of it. Later on, it becomes abstract and impersonal, passing as it were outside of us—in the words of one of our Subjects ; « all passed swiftly as one continuous idea, or representation, at which I seemed only to play the part of a spectator. »

As motivation grows more simple, it becomes swift and ' continuous '. It is no longer jerky or disconnected. It passes by like a streak or flash of light. It flows smoothly or easily, and when no troubling cir-

(1) James, *Principles of Psychology*, vol. II. p. 531. « Where the emergency belongs to a species without precedent, to which consequently no cut-and-dried maxim will apply, we feel most at a loss and are distressed at the indeterminateness of our task. As soon, however, as we see our way to a familiar classification we are at our ease again. »

cumstance occurs, its tone is pleasant. It is an agreeable experience *to go through* a choice well.

Then, again, motivation grows abstract. Images, associations, actual feelings, and inhibitions of various kinds disappear; the motivation passes into a higher region of the mind, becoming more ' intentional ' and finally, it presents the appearance of ' a kind of abstract algebra '. The whole aspect of the motivation changes and the motives which, to use the words of S[3], « at first were real, individual, substantial definite forces, now are like shadowy unreal, indistinct parts of a whole ».

When motivation has passed through many stages, and grown more and more abstract, it finally reaches the stage of Automatism. Indeed, Automatism is the final term towards which motivation naturally tends. Volitional effort must be economised and it is best economised by Automatism. The repeated decisions and choices have now formed a habit. Effort and special attention are no longer necessary.

The dispositions left behind by previous conation facilitate subsequent conation in the attainment of its end. When this process of facilitation reaches a point at which conscious endeavour is no longer necessary, the action becomes automatic. (1)

As Automatism comes to prevail Hedonic motives grow rarer — especially Hedonic *positive* motives. Deontological motives and automatic tendencies take their place. The whole aspect of motivation is changed.

The following table illustrates this fact, of the gradual disappearance of hedonic preferences. The figures are for the last 301 experiments of our second series—that is to say the period during which Automatism was developing.

(1) *Manual of Psychology*, p. 605.

TABLE SHOWING THE GRADUAL DISAPPEARANCE OF HEDONIC PREFERENCES.

PREFERENCES	SUBJECTS	EXPERIMENTS					
		1-20	20-40	40-60	60 80	80-100	100-120
H. P.	S^1	9	5	2	1	—	—
	S^2	9	8	4	1	—	—
	S^3	7	6	1	1		
H. N.	S^1	7	5	5	1	—	—
	S^2	7	5	5	3	5	2
	S^3	7	6	6	3		
H. (P + N)	S^1	3	2	—	—		
	S^2	2	4	2	—	—	1
	S^3	4	5	1	1		
Extr. P	S^1	—	—	—	1		
	S^2	1	2	1	—	—	—
	S^3	—	1	—	1		
Deont.	S^1	—	2	8	6		
	S^2	1	1	2	2	2	2
	S^3	1	—	—	1		
Auto.	S^1	1	6	5	11		
	S^2	—	—	4	11	11	13
	S^3	1	2	11	13		
Inexpl.	S^1	—	—	—	—		
	S^2	—	—	2	3	2	2
	S^3	—	—	—	1		

H. P.	Hedonic	Positive Preference
H. N.	»	Negative »
H. (P + N)	Hedonic	Positive and Negative Preference
Extr. P.	Extrinsic	Positive Preference
Deont.		Deontological »
Auto.		'Automatic' »
Inexpl.		'Inexplicable' »

It will be noticed that the only hedonic preferences which tend to persist are the 'negative' hedonic. In the cases of 'deontological' and 'automatic' preferences there is an increase with the Evolution of Motivation.

Methods of Studying Motivation-Evolution.

From what we have said of Motivation-Evolution and Automatism, it will be seen that there are two matters to be studied.

1. *The various stages in the Evolution of Motivation towards Automatism.*

2. *The Economising of Volitional effort by Automatism.*

In the present chapter we shall study the first, leaving the second to be treated in the next chapter.

Two methods of studying Motivation-Evolution present themselves—one *indirect*, the other *direct*. The first, the indirect method is that of considering particular motives apart, and tracing the evolution of form manifested in them. The second, the *direct* method of studying Motivation-Evolution is that exposed in our last chapter on Motivation-Tracks.

In the present section we shall employ the indirect method, and in the next section the direct.

The *Indirect* Method.

The method of our first series afforded exceptional opportunities for studying the genesis, development, and evolution of motives.

The reason was the following. The substances were at the beginning, *unknown*. Motives for or against them, only sprang up during the course of the experiments, and hence they could be followed from birth to death.

We propose then to study the various appearances of the motive for E, as seen in the introspections of $S,^{1}$ with a view to determining its general evolution.

E was chosen by S^{1} twenty times, out of a possible

twenty-one times. It will be remembered that E was a strong positive motive—it represented a very agreeable drink—its hedonic character tended to hasten and facilitate its evolution as a motive. Evolution of the Motive for E.

We give, practically in full (quoting the exact words of the introspections), the motivation provoked by E on each occasion. The numbers refer to the chronological order of appearances with respect to S¹'s experiments. The signs CE/E or DE/E mean that C—E or D—E were presented as alternatives, and that E was chosen. We note what we consider to be different stages of the Evolution of the motive for E, after each extract.

It is important to recall to mind that there were (in this, the first series) usually four stages in the Experiments.

1. Perception of the Card with the letters.
2. Perception of the Glasses.
3. The Motivation, which comprised valuations of alternatives, discussion of motives, tendencies followed or resisted, etc.
4. The Choice, which was realised by drinking the chosen substance.

We now proceed to give the twenty-one appearances of E, in the experiments of S¹.

Extracts from the Introspections of S¹.

1. CE/E. One is as good as another.

N. B. Neither C nor E are yet known.

6. DE/E. On seeing card, E seemed agreeable. Loked at glasses and recognised E as agreeable ; but in an intellectual way, without agreeable feelings.

N. B. We see here, well marked, three stages of the experiment (a) Perception of card (b) The perception of glasses (c) Judgment or awareness of value.

8. BE/E. Read E. Conscious after a while that E was pleasant. I knew (savoir) that E was pleasant. Pressed button impulsively

and took E. The card with E *printed* seemed « an agreeable card ».

N. B. Motivation is concrete. E is judged to be pleasant.

9. AE/E. Conscious I had taken E just before. That consciousness about E is agreeable. The agreeableness is in some way conscious. I had knowledge about pleasureableness of E and feeling of pleasure. Judged, « *C'est bon comme ça* » a consent, less accentuated than in the last experiment.

15. EF/E. Conscious of knowing that E was *very* good. Reacted at once without seeing F. Motive for taking E was consciousness that it was very pleasant.

N. B. This marks a further stage of development. The glass F was not even looked at or considered, once E was recognised. The choice is impulsive.

17. CE/E. Looked at E. Consciousness that it was pleasant. Took and drank it mechanically. Taste agreeable.

N. B. Mechanism and Automatism now appear regularly.

21. DE/E. Knowledge of E's goodness is not separated from perception of E. E is « that good thing. » Had something like an acceptation of E; it seemed something automatic and not voluntary. Whole seemed very short. Took E impulsively and drank.

27. CE/E. Immediately on reading recognised D and then E. Had consciousness « *C'est tout décidé* » and took E. When I say *recognised* I mean I have no distinct consciousness, outside consciousness of D and E : but the letters D and E have worth of symbols, which represent all about D and E. D is a bad thing, the worst of all. E is a good thing, the best of all. I am not formally conscious of those properties; it is included in the perception.

N. B. This marks a further stage of development. The mind is wholly occupied in the perception of the symbolic letters. The Motivation coincides with this act of perception and is contained in it. The Motivation has become more abstract.

29. BE/E. Just as in preceding case, B did not awaken any idea. E appeared to me « that well-known thing ; a symbolised known thing. » After a moment, consciousness like this : « I have E there, then it is E. »

N. B. The motive here takes the form of a general rule.

34. EF/E. Looked at E. Suddenly recognised E, and had consciousness, « Oh ! it's E ». Again aware of goodness of E but

in a purely intentional way—not formally contained in consciousness. Immediately let go button and took E very rapidly.

36. AE/E. Looked at E. Then had actual feeling of pleasure, Immediately I recognised it, I let go button very impulsively, took E and drank.

N. B. Automatism develops.

41. BE/E. Saw E at first with indifference. Then at a given moment came recognition : « Oh ! it's E ». Then immediately took and drank. The recognition of E was like recognising, « Somebody I know »; « Oh ! it's that well-known thing ». It brought a slight feeling of pleasure.

N. B. The whole value is contained in the recognition.

42. CE/E. Saw E, « Oh ! it's E. » No words, but only sense, or consciousness was there. Simply recognised E. A vacant moment followed, then I reacted and took E. Can't say if I had any feeling. I don't think there was any other consciousness than recognition of E. E is a symbol ; that something E.

N. B. The Subject now, for the third time, remarks that E has become a more or less *indifferent* taste—just slightly pleasant. Still he takes it eagerly through habit.

48. EF/E. Read letters, and immediately conscious « Ah ! it's E ». I'm not sure but that the agreeableness of E was present under some form or another. N. B. Motivation more abstract—fusion of intermediate stages of the choice.

50. CE/E. On reading E immediately conscious « Ah ! it's E ». In this consciousness all that relates to E is contained, without being formally present to me; perhaps a slight feeling of pleasure. Reacted impulsively and took E.

53. EF/E. Looked at E. Conscious of recognising it, and had feeling of pleasure. Then looked again at F without any special idea. Reacted and took E. It is hard to say why I took E. The whole is automatic. I can't say I acted from any motive. Reflecting now, it seems I took E as it was best. During this experiment no motives, such as used formerly occur came. *The whole thing runs of itself.* N. B. Motives escape consciousness—Automatism develops.

55. DE/E. Read simply D and E. Then a very short moment of blankness—then took impulsively E and drank. Can't discover anything else than the perception of D and E. They are directly symbolic. *No motives ; all was impulsive.*

56. AE/E. Looked at E. Recognised E. Let go button impulsively and took E. No Motives.

57. BE/B. Conscious first that B was *citric*. Then saw E— immediate tendency to take it. Then came rememberance that I had already taken it several times. I hesitated, remembering that B was bad. Then occured a blank moment, and afterwards *some idea* corresponding to the words « Bah ! what matter that it is bad. » Had feeling of indifference for the badness of B. (I made no judgment). I took B. I took B to change, and because the unpleasant feeling of taste appeared to me as of no importance. B was taken for its *absolute*, not for its relative value.

N. B. This is a very interesting introspection. It shows the impossibility of arriving at absolute Automatism when dealing with human beings. This is a type of ' Capricious Choice '.

It is however, the only time out of the 21 presentations of E n which E was rejected.

62. AE/E. Looked at E. Very impulsive tendency to react. I think, before reacting, came very vaguely, the consciousness or idea « I don't know A ». Let go button and took E impulsively. No Motives. Entirely automatic.

Considering broadly and generally this evolution of the motive for E, we find three distinct stages :

I. *At the Beginning*. E was a strong, positive, hedonic motive. « I had knowledge of pleasureableness of E and a feeling of pleasure. »

9th Experiment.

II. *Later on*. E occasioned little or no feeling. It was regarded intentionally or intellectually as an idea. « Aware of goodness of E in a purely intentional way. »

34th Experiment.

III. *At end*. The recognition of E was simply the first term of an automatic act. « Looked at E. Very impulsive tendency to react. »

62nd Experiment.

Again this evolution might be thus described. E is at first only vaguely known; ' E *seemed* agreeable, no

feelings'—next E is *definitely judged* as pleasant, agreeable, or very good; ' conscious that E was ' that good thing ". E is ' that well known thing ', ' that good thing ', ' the best of all '. At this stage too, E is spoken of rather as *good* than as *pleasant*. Good is a more abstract term. The *general principle* too is formed : « When I have E there, then it is E. »

General Description of the Evolution of the Motive for E.

At a further stage the Motivation becomes ' a kind of abstract algebra '. The knowledge of E's goodness is now *purely intentional*.« Had consciousness «Oh ! it's E ! » but in a purely intentional way »; motives finally disappear—' no motives, all impulsive '—intermediate stages are fused and Automatism reigns.

If we put the evolution just described in comparison with the evolution of the motive of Rarity, in the work(1) of Michotte and Prüm, we find many points of agreement. In both cases the *first stage* is that of immediate judgments of value, though in our case as, the basis of the motive is identical with its content (2), it is not given apart from it. The second stage of the evolution of the motive of Rarity is that ' it becomes a general norm '. This stage is also found in the evolution of the motive for E. The presence of impulsiveness in this latter evolution, corresponds to the growing predominance of subjectivity in the evolution described by Michotte and Prüm. The last stage of their evolution is thus described :

« Enfin dans les dernières expériences le jugement de valeur devient de plus en plus vague ; il n'apparaît plus que sous une forme extrêmement abstraite, et l'état sentimental, par contre, s'accentue ».

(1) *Le choix volontaire*, p. 232-237.

(2) Agreeableness is the *basis* and *content* of such motives as : ' Conscious E was pleasant '.

Perhaps, the chief difference between the two evolutions, is that, in that of Michotte and Prüm, the tendencies of the Subject P were exceptionally ' sentimental ' : « les motifs du sujet P. à l'inverse de ce que l'on trouvait chez les autres sujets, avaient une tendance à prendre une forme subjective. »

Apart from this fact, we may say, that in general the two schemes of evolution, confirm one another.

Content and *Form* in the Evolution of Motives.

In the evolution of the motive for E we have been considering the evolution of the *form* of a motive. Now, in a certain sense there is also an evolution of the *content* (1) of a motive.

We must first show that a relation exists between the content and form of a motive. And next that there is a parallel evolution of the content and form.

1. That there is a relation between the content and the form of a motive appears from the fact, that when, say, owing to distraction, a substance was only superficially seen, and not fully understood, the motive both in form and in content, was meagre and attenuated. « Having only superficially seen K the motive for it was not so strong as if I had seen it well. » Again, « the experiment passed a little in distraction, so that all judgments of value and feelings of pleasure or displeasure were absent. They did'nt come. » Here, owing to distraction, there was little or no *content* in the motive for K. The *form* was correspondingly vague and weak. In the following case, however, the *content* was very full and the *form* was characteristically strong—viz. an attraction.

« I was drawn immediately by K. In that attraction for K there was the memory that K was always good;

(1) We understand 'content' of motive in a wider sense than that of Michotte and Prüm.

that it played an important rôle. I recalled, so to say, all the decisions already made for K, so that it becomes as it were a habit to choose K. It was a choice for K but very easy because I have the habit of making it. For K there is a reason of agreeable quality, which is always at the basis of the preference which I have for it. »

Here the Subject gives in detail the *content* of his motive for K, which is very full, and lets us see that the *form* of the motive was a strong attraction. We add one more example, which shows how distinctness (separateness) of form, and definiteness of content go together : « Read T—K. T appeared as ' good ', I had an impression of value; I looked at K and the consciousness ' good ' came, I don't know how. *That value was much more conscious than for T.* It was a separate consciousness, not a vague impression. »

2. That there is a parallel evolution of content and form will appear from an examination of the evolution of the motive for E. It will be seen, for instance, that while in N° 9, the content is full and the form strong and definite, in e. g. N° 42, the content is meagre and the form is a mere consciousness. Towards the beginning, the form and content are definite, towards the end both become vague, and attenuated.

So far we have employed the ' *indirect* ' method of studying Motivation-Evolution. This method, we are aware, is open to objection. First of all, it means that motives are considered apart from their natural setting in the Motivation of the choice. Secondly, it supposes that e. g. the motive ' E ', in the choice D—E, is the same motive as ' E ', in the choice C—E ; and that ' E ' in each case is at the same stage of evolution, there being a uniform evolution for ' E ', which embraces all its

appearances in no matter what choices. Such a supposition, was also made by Michotte and Prüm, in their method of studying the evolution of the motive of Rarity. It seems to us arbitrary. We have only made it, and employed this indirect method, which we consider imperfect, with a view to throwing light on the general nature of Motivation-Evolution.

The Direct Method of Studying Motivation-Evolution.

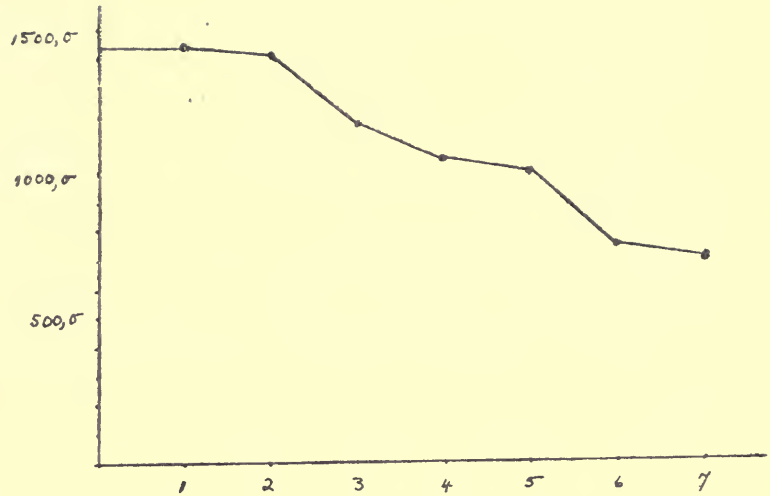
We now come to our second method of studying Motivation-Evolution. It is that employed also in our chapter on Motivation-Tracks. This method is by no means open to the objections indicated above. Motives are here considered in their natural setting in the choice act, and, only motives occurring in exactly similar choices are compared. The Motivations of the 1st, 2nd, 3rd, etc. repetitions of the same choice are considered together, and the laws of the formation, developmen and evolution of Volitional habits are seen.

When Motivation evolved normally, it grew swifter, simpler, and more automatic.

When on the other hand Motivation was interfered with by Hesitation, it *devolved*, rather than *evolved*. It became irregular, longer, and the opposite to automatic. In our chapter on Hesitation we shall see some examples of the 'Devolution of Motivation'.

The Evolution of the J—V Choices of S^3.

We shall now give some examples of the Evolution of Motivation—the first is the J—V choice of S^3. *V was chosen in each case.* The Reaction-Times were respectively 1437, 1406, 1162, 1047, 1005, 761, 706 sigma—*the shortening of the duration being quite regular.* These times give the following curve.



We give extracts from the seven introspections so as to show the gradual Evolution of the Motivation.

1. Nov. 30. I recognised both J and V at once. They stood for the ' tastes ' in terms of quality and intensity. I chose V, in virtue of my preference for it in terms of quality and intensity.

N. B. Motivation is full and deliberate. Both *tastes* are held in comparison.

2. Dec. 10. I recalled J as not preferable in itself. I knew that I could identify it to any given extent. I went on to V and remembered that the taste of V was pleasant. I chose V. All more and more automatic—it is just like a question, ' Tea or milk for Breakfast ' ? One would say Tea at once.

N. B. Motivation full and concrete—but sligthly curtailed. J is not completely indentified.

3. Dec. 13. Immediate recognition of J. Passed to V. Steady recognition of V followed. Chose it positively.

N. B. Motivation more direct and brief. J was not taken into account.

4. Jan. 19. Immediate recognition in order J—V. Interval of mooning, followed by a conscious effort to make up my mind. V chosen for its quality and intensity.

5. Jan. 30. Immediate recognition in order J—V. Had immediate tendency to choose V, and I followed it, feeling that I could if

necessary give reasons—though the reasons were not in any way explicit.

N. B. Motivation impulsive and automatic ; V is taken at once without a pause.

6. Feb. 1. Immediate recognition in order J—V. Some instants of mooning, followed by an immediate choice of V for its quality and intensity. There was only a slight comparative reference to J—it was not very explicit.

7. Feb. 8. Immediate recognition in order J—V. Moment of bewilderment (mooning) ; deliberate choice of V.

N. B. Motivation now follows in a groove. The two names are recognised ; there is a slight, habitual pause (1), then V is seized at once, with increasing swiftness. Motivation has become quite automatic.

Another example, also from S^3, shows how (in the third choice) an effort to be consistent was made, and how, nevertheless, 'a line of least resistance' was followed—there were six choices.

The Evolution of the K—L Choices of S^3.

1. Nov. 28. Kum chosen. Reaction-Times 598 sigma.

Passed from one to the other without recognising one or the other. Came back from the second to the first ; recognised that the contrast was between bitter and sweet ; chose the sweet, liking sweet tastes as such better than bitter. No images, or feelings, or tension—standard only came to mind when reacting.

2. Dec. 7. Kum chosen. Reaction-Time 1224 sigma.

Slightly distracted when the card appeared... I came back to K in an 'abstract' manner and recognised it as something sweet. Was aware of a distinct feeling of power to recall in any required detail its taste. I passed on to L. It appeared to me as something vaguely objectionable. I chose K by excluding L.

3. Jan. 18. Kum chosen. Reaction-Time 1469 sigma.

Immediate recognition of both in the order K—L followed by an automatic tendency to choose K. The thought then supervened, I had in the past chosen L in this choice, therefore *in view of my desire to be consistent*, I had to have some reason for changing. At that moment I was aware of an instinctive recoil from the bitterness of L, which occasioned an association (at margin of

(1) Vide Motivation Tracks.

consciousness) with a past illness. Further I knew that K was not intense, though rather insipid. I chose K in my present mood in view of its harmlessness, being conscious that in a more vigorous moment I might have chosen L.

4. Jan. 23. Kum chosen. Reaction-Time 1120 sigma.

Immediate recognition in the order K—L. I remembered that this choice had been present before. I was aware that my thoughts, in orienting towards the choice, were running in the same mould. I was conscious that my mind had been in the same frame before *vis à vis* of a choice. L appealed to me as *intense*, K as *qualitatively* agreeable; *consciousness that I was shirking the bitter* and taking the sweet, was present to me. I chose K.

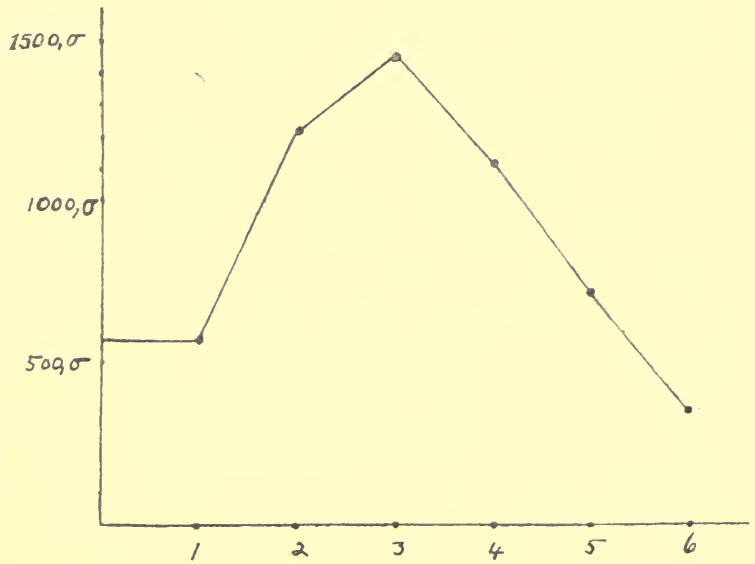
5. Feb. 4. Chose Kum. Reaction-Time 714 sigma.

Recognition in order K—L. K was slightly more distinct. I had an instinctive tendency to reject L, followed, after a comparative judgment of value, by actual rejection.

6. Feb. 11 Chose Kum. Reaction-Time 369 sigma.

Immediate recognition in order K—L. Feeling of contrast, and of the great difference between the intensities of the two liquids. I chose K, feeling that *I was taking the line of least resistance.*

The Reaction-Time curve for these choices is as follows:



From the point of view of *character* this Motivation-Evolution is interesting. The Motivation in 1. is swift and decisive—the ' sweet ' is chosen. In 2. owing to distraction the time is longer, the Motivation too, is more negative. In 3. the Subject, feeling he is not ' consistent ' makes a ' moral ' effort towards a serious Motivation. Still he chooses K in a weak moment. The decline begins. In n° 4 he is conscious of ' *shirking* '. Choices grow rapid. In n° 5 he instinctively turns from L, and in n° 6, he avowedly ' *is following the line of least resistance* '.

General Remarks on Motivation-Evolution.

We see that the natural tendency is towards automatic choosing. The times grow shorter, the number of phenomena grows less, only one alternative is considered, there is economy in every sense, and finally, the Motivation reaches such a point, that it never, or practically never deviates from a certain curve or ' Motivation-Track '. This final stage of development may be reached sooner or later. In some cases it is reached swiftly—then the effect is striking.

An instance of this kind is found in the T—J choices of S^2. These choices always resulted in an easy preference for T. The Motivation evolved rapidly. After six choices it had reached its final stage. *The last three choices were simple repetitions of the same nine words* (1).

« Saw T, then J, I took T while seeing J. »

Automatism, which we shall now consider in detail, is thus the natural issue of normal Motivation. If

(1) They were as follows — *1°. Jan. 31.* « T first, then J, took T while seeing J. » Reaction-Time 582 sigma.

2°. Feb. 6. « T, then J, took T while I was seeing J. » Reaction Time 661 sigma.

3°. Feb. 10. « Saw T, very superficially, then J, I took T while seeing J » Reaction-Time 567 sigma.

Automatism is not attained, it is because some such troubling cause as Hesitation, has interfered with the normal course of Motivation, and upset its Evolution.

Automatism should not then be considered as an evil, but on the contrary as a manifestation of the protective, and economising tendency of volitional functioning. It shows, that, as Mr Stout writes (1), « it lies in the essential nature of conation that, conative processes should cease, if and so far as their end is attained' ».

(1) *Manual of Psychology*, p. 111.

CHAPTER VII.

AUTOMATISM.

Automatism in Choice-Processes.

In our last chapter we studied the various stages of the Evolution of Motivation towards its final term, which is Automatism. In the present chapter we propose to dwell on Automatism as a manifestation of the economising tendency of volition.

We understand Automatism in a wide sense, as being the state arrived at by the Will, when it functions, evenly, swiftly, and regularly, and in a manner, more or less independent of conscious attention. We do not imply that consciousness is altogether absent in automatic actions. It seems to us that facts show that there is usually present some trace of consciousness. We quite agree with Mr Stout (1) that, in automatic actions « the diversity of attention is probably never absolutely complete. The musician for instance is more or less aware that he is playing a piece of music, and the absent minded walker is not utterly oblivious to the fact that he is in a crowded street and in motion. What can be asserted is, that in such cases there is no persistent and discriminating attention to the details of the action. »

Again there is no evidence, that such Automatic

(1) *Manual of Psychology*, p. 109.

actions are no longer *free*. Neither of course, is there evidence of the presence of an internal *fiat*, or of a feeling of effort ; such phenomena are most likely totally absent. Still, to affirm that because actions happen regularly, evenly, and swiftly, and that because they seem to pass outside of, or apart from us, they are no longer *free*, is to quit the empirical standpoint and formulate a metaphysical theory.

Automatic actions too, should be considered as voluntary. They imply as we have seen, a highly developed, or rather an abstract, and attenuated state of volition. They are nevertheless acts of the Will.

De même, writes M. Paulhan, qu'il reste beaucoup d'automatisme dans la volonté, il reste de la volonté dans l'automatisme, ou plutôt des éléments de la volonté, des caractères affaiblis de la volition, de sorte que nos divers états ne sont jamais très purement automatiques, ni absolument volontaires. Ils sont composés des mêmes éléments mais en proportions variables et de telle façon qu'en certains cas, l'automatisme est à son maximum et les éléments de volonté à leur minimum, tandis que d'autres fois c'est le contraire qui se produit (1).

Though Automatism is difficult to define from an '*outside*' point of view, it by no means presents the same difficulty to those who are, so to say, *experiencing it*. They know usually when their actions are really automatic. Often our Subjects said, in the introspections, « it was so automatic that I can hardly tell how it happened », « if my attention were not very concentrated I could not say how the process passed. »

At times they were struck by the fact that the choice process seemed to take place quite independently of them. « I am as a spectator watching what is going on within me, without taking part in it. » In such cases the Subjects make movements or effect

(1) Paulhan, *La volonté*, p. 27.

choices in a way which is wholly unaccountable to them. « I am still asking myself why I did that », or « I chose X without knowing why I did so ». At times, they were struck by *the very 'continuous' nature of the choice*—the whole process would seem to pass « all in one continuous movement ». On these occasions the choice was affirmed to be automatic, or even « absolutely automatic ». « The whole mental state,» in the words of one Subject, « seemed like one continuous movement towards C ». More striking testimony to the presence of Automatism was found in such introspections as the following— « I should not have known, were it not for the displaced glass, that I took Z, so automatic was it ».

Aids towards Automatism.

In our experiments there were certain circumstances calculated to render the choices quickly automatic. First of all, there was the sameness of external conditions. The choices were made in the same surroundings, in the same order and manner, and between combinations of well-known objects. Secondly, the instruction implied that the Subject should react *as quickly as possible*. Thirdly, motives for the choices were readily forthcoming, as the alternatives were well-known, and as they had well-differentiated hedonic values. Fourthly, there was that « *proness to act or to decide* », of which James speaks, which is felt in choices made under a certain tension, and which tends to make us act automatically. James regards it as a motive (1).

Certain motives are more or less constantly in play. One of these is impatience of the deliberative state ; or to express it otherwise, *proness to act or to decide merely because action and decicision are as such agreeable*, and relieve the tension of doubt and hesitancy. Thus it comes, that we will often take any course whatever, which happens to be most vividly before our minds, at the moment when this impulse to decisive action becomes extreme.

With regard to this latter point, we have noticed that such hap-hazard, inexplicable choices— « choices with-

(1) *Principles of Psychology*, vol. II, p. 530.

out motives »—occur when Automatism is developed (1).

Other causes favouring the development of Automatism were the absence of distractions; simplicity of the choices; and a certain slight indifference or diminution of interest.

Tendencies against Automatism.

Certain circumstances tended to prevent and delay the development of Automatism. First of all, the instruction implied that the choice should be made *for serious reasons;* that is, that the motivation should be thorough. Secondly, the presence of a kind of introspective self-consciousness, necessary for a Subject anxious to observe all that passed within, naturally told against Automatism. Thirdly, the frequency of hesitations with one Subject, and with another, the habit of resisting tendencies and impulses, opposed it. Then, again, what James calls « *the dread of the irrevocable* » fought against impulsive choosing.

In spite of these hostile tendencies Automatism increased steadily. In the *second series* (already at Christmas), after 273 experiments, it was noticeable. Naturally the break of a few weeks, for the holidays, threw it back considerably, but before long, it became strong once more, and towards the end of the second series many remarkable signs of the presence of Automatism were found.

Signs of Automatism.

The clearest manifestation of the presence of Automatism is found in a comparative examination of Reaction-Times.

r Reaction-Times

Let us take, for instance, the Reaction-Times for the last 301 experiments of the second series, when Automatism was on the increase.

(1) Vide Chapter VI. The choices in which E was taken ' without motives'.

EXPERIMENTS	1-20	20-40	40-60	60-80	80-100	100-120
S^1	581.8	545.7	495.5	478.7	456.2 (1)	
S^2	1057.6	953	934	816.5	668.2	615.7
S^3	1020.3	875.1	746.2	654.9	574.2	

As will be seen, in our section on Reaction-Times (2) the gradual shortening of times was likewise uniform in the other series, with the exception of one figure of S^2.

2 Disappearance of Phenomena.

We have seen, in our chapter on Motivation-Tracks that various phenomena tend to disappear from the choices such as, images, feelings, and comparative judgments. This disappearance of phenomena is a sign of increasing Automatism, and continues concomitantly with its increase. It is naturally difficult to give a numerical appreciation of this fact. All we can do is to count such as are *recorded* in the introspections of the Subjects. Having done so, we give a table, corresponding to that of the Reaction-Times just given. It shows the total number of phenomena, recorded in the introspections of each Subject—for each 20 experiments of the last 301 experiments of the second series.

Phenomena recorded during the 2nd part of the 2nd series.

EXPERIMENTS	1-20	20-40	40-60	60-80	80-100	100-120
S^1	76	61	44	41	—	—
S^2	54	36	34	35	26	16
S^3	89	51	46	30	16	—
	219	148	124	106		

(1) This figure only represents the mean of *four* choices. S^1 only did 84 experiments of this 301.

(2) Vide Chapter II.

To explain in detail, what such a gradual disappearance of phenomena means, let us take another table.

Table showing the gradual disappearance of certain phenomena during the first 273 experiments of the Second Series.

PHENOMENA	SUBJECTS	EXPERIMENTS 1-30	30-60	60-90
Impressions of	S^1	29	16	4
'*Positive*' value	S^2	20	8	7
	S^3	10	8	1
Impressions of	S^1	18	19	3
'*Negative*' value	S^2	20	8	8
	S^3	13	8	4
Comparative	S^1	15	9	9
Judgments	S^2	13	8	3
	S^3	20	15	8
Judgments of	S^1	10	3	0
'*Absolute*' value	S^2	2	1	0
« Best », « Worst »	S^3	12	9	4
Feelings of	S^1	9	3	0
Decision or	S^2	5	6	1
Consent	S^3	0	0	1
Hesitations of	S^1	14	5	7
Various kinds	S^2	7	8	11
	S^3	12	5	4
Reproductions	S^1	3	2	0
of Tastes	S^2	2	0	0
	S^3	7	1	0
Movements	S^1	3	2	0
or Choices	S^2	4	1	2
Changed	S^3	0	1	0
Impulsive	S^1	5	4	6
Choices and	S^2	11	7	6
Movements	S^3	8	4	3
Judgments	S^1	15	8	11
« That's right » or	S^2	2	2	0
« That will do »	S^3	1	0	0

These numbers are *for each phenomenon* and for each Subject. This table is based on the first 273 experiments of the 2nd series, as the phenomena were, during this early period, numerous, and their disappearance was easily observable. We divide the experiments into three groups of thirty. Certain abbreviations are used, but they will be easily understood. The figures should be regarded only as approximations, though we believe they represent the reality faithfully. As, many phenomena occurred frequently with some Subjects, and rarely or never with others, we were forced to select such as were to be found in the introspections of all three Subjects.

3 Regularity of the Choices.

We have seen that increasing swiftness, and (owing to the disappearance of many phenomena) increasing simplicity, mark the presence of Automatism. We now come to the third sign, that of the Regularity of the Choices. This regularity is manifested both in the *qualitative* nature of the choice and in its *time-duration*. With regard to qualitative regularity we have such incidents as that of the last three T—J choices of S_2 (1), where thrice the whole introspection is the same. We have seen too, in our chapter on Motivation-Tracks how the same choice tends to repeat itself in an identical manner.

With regard to regularity in time-duration we have seen that at times the same choice was repeated in the same time, to a thousandth of a second. And that very often, there was a very slight difference between the duration-times of the same choices, altough there was of course, a general tendency towards quickening the reactions. We adduce some series of choices as examples—from the ' times ' of S^1

(1) See the last chapter.

S^1	choice	C—B	574	497	323	869 (1)	471	466	471
S^1	»	Z–C	456	531	531	440	407	817 (1)	572
S^1	»	J—V	506	539	532	589 (1)	510		
S^1	»	Z—J	393	393	689 (1)	758	601	319	
S^1	»	Z—K	482	432	860 (1)	687	682	457	

A similar uniformity was found in the Reaction-Times of S^2 and S^3.

Regularity was manifested *in every phase of the choice-process*, in the manner of reading the card, in the manner of reacting, and of realising the choice. Automatism entered into every detail of the experiment. Even the experimenter, came to perform the various functions in a perfectly automatic way, so much so, that the salient note of the whole experiment, towards the end of the series. was its mechanical regularity.

4 Continuity and Evenness.

I have referred already to the fact, that Subjects were struck by the Evenness and Continuity of the choices when Automatism was developed. They frequently notified in their intropections that the choice was even and smooth. All jerkiness and discontinuity was absent.

All seemed one continuous act. The process seemed a single continuous one. I had a feeling of easy effort all through.

They were, during this period particularly observant of anything like disparity or contrast between the alternatives. At times such disparity, for instance, the finding of something very good at the side of something very bad, occasioned a jerk or sudden change of level (2) in the choice-process. This phenomenon was

(1) This choice was the first after the interval for Holidays and so was somewhat longer.

(2) To quote from a Z—C choice of S^3. « Felt a great unevenness in the elements of the choice. Things very different (like Z and C) seem to me to be situated on two banks of a ravine—visual image not clear—still Z and C appeared as *separated by a ravine*. »

called « *brusquerie* » by S² and was described as a sudden passage from one state of mind to another, or as a passage from a state of activity to one of passivity. This mental « *brusquerie* » was also noticed on similar occasions by the other Subjects ; it occurred however rarely.

I have dwelt on this point, here, with a view to emphasising the fact that when Automatism is present, there is a sense or feeling of evenness experienced.

5 Other signs of Automatism.

The presence of Active Tendencies of all kinds, muscular and mental, marks developed Automatism. The Subjects often felt a tendency towards an alternative, although they did not know what it was, just because it was at the left side—the alternatives at the left being more frequently the best. Then, again, if the first alternative seen was not good, there was an immediate, often a violent tendency, to take the other.

« I rebounded to T when I saw C ». « I fell on B when I saw C ». — « I had decided for J before seeing it. » Sometimes a tendency was felt, not towards the alternative at the right, nor towards that at the left, but towards « any thing at all » ; a pure tendency towards effecting a choice.

The presence of ' inexplicable ' choices also marks a highly developed Automatism. Take for instance the following examples from the introspections of S². « I dont quite know how or why I took C. Was it confusion ? Automatism ? or a hidden choice ? » Or again, « I took T all the same, although I judged K better. It is impossible to explain. It was late when I saw my error and I was astonished. Yet I felt this change was explicable.

Such introspections generally began with the announcement *that something strange had happened.* The effect on the Subject's mind being almost startling.

Another sign of the Automatism is the Subject's feeling that he is choosing according to a habit ; that the choice is running easily. Thus S², N° 68, says ; « On seeing

K a certain habit of preferring it plays an important rôle » ; « *it becomes as it were a habit to choose K* ». Finally, there is the point to which we have already called attention, that the choice seems to take place quite independently of us. We seem only to play the part of spectators. It passes as it were outside of us, and we look on.

All passed swiftly, as one continuous idea, or representation, at which I seemed only to play the part of a spectator.

Volitional Economy in Choices.

In early introspections Subjects had much to remark. There were often many motives to record, many feelings to describe, and judgments to formulate. Towards the end introspections were short and laconic; « L—Z, I took Z » ; « K—C, I took K, nothing else to record » ; « I was decided for K once I saw it ». This brevity and simplicity was not due to any carelessness on the part of Subjects. The fact was that there was nothing more to remark. There were no feelings, hesitations or motives to describe. *The mental act had become direct and simple*—at least as far as it was observable in consciousness. The Will had gradually ceased to expend useless effort. *Volitional force was economised.* Motivation was reduced to a minimum. Automatism held sway, and there was nothing to record.

This natural economising tendency of the Will is interesting to study. It appears in every phase of the choice process. We have seen, in our chapter on Motivation-Tracks, that when some structural item of the Choice-Process becomes unnecessary, it disappears. We have seen too, how, if the choice can be safely made by a consideration of only one of the alternatives, only one is considered. Indeed, towards the end, whenever C was seen first, its alternative was at once taken with-

out even being looked at. And whenever Z was seen first, it was at once taken, without the other even being looked at. Then, again, Subjects began to save themselves the trouble of re-entering into a full discussion of Motives. They took various short-cuts towards their choice, or rather guided themselves in their choices by various means, other than that of entering into a discussion of Motives.

Now it was by means of memory ; « they remembered that such an alternative was their favourite », or to quote S^3, N° 40 ; « I feel I can now truthfully stake my choice in the light of past experiments by a kind of abstract algebra »—or again, an appeal is made to an image-scale which comes to mind, and the choice is at once registered in favour of the alternative symbolised by the higher position. For instance, in the K— C choice of S^3: « Immediate recognition in the order K—C. K was associated with the figure « 2 ». C was some other figure beyond 6—the image was faintly visual and quite distinctly auditive. I chose K. »

The fact that the choice was present to consciousness as a unit, as one block-piece, which had to be broken up mentally, whereas formerly it had been present to consciousness in separate parts which had to be put together and synthesised mentally, struck the Subjects very much. S^3, for instance said : N° 62.

In the past my thought (in these choices) was synthetic. I compounded reasons for my choice. Now it is primarily analytic. I have to break up the whole introspection by force into its parts. It would be impossible did I not already have practice and experience at the work. At first Motives were real, individual, substantial, definite forces. Now, motives are like shadowy, unreal, indistinct parts of a whole. Motives come to be set, as it were, in one block thought-act. Motives and Decision are all in one action of the mind—so knit together that without careful analysis no knowledge of them is possible.

For S^3, choices became so direct and simple owing to Volitional Economy that they resembled for him

such questions as « Tea or milk for breakfast ? » to which an immediate reply would be given « Tea please » ! « I choose Z, he says, in a perfectly and absolutely abstract manner, just as I might say 7 is greater than 3. »

We shall now dwell for a moment 1. *on Economy in Motivation* 2. *on Economy and Hesitation*, and then conclude this chapter, by examining a method of testing the Degree of Automatism.

Economy in Motivation.

Volitional effort in Motivation may be economised in three ways. *A*. in neglecting to analyse the character of the alternatives, *B*. in neglecting to compare them formally, *C*. in neglecting to hold the reasons of the choice before consciousness at the moment of choosing.

Now, in our researches, Economy was practised in each of these three directions. We adduce examples.

A. S[3] had the habit, at first, of taking account of the nature of the tastes of the alternatives proposed, in more or less detail ; he did so *explicitly*. Later on, he finds that in the choices, he no longer analyses the nature of the alternatives, but contents himself with feeling that he could do so. Finally, he no longer *feels* that he could do so, but, in an abstract way he *knows* he could, if he tried. In the choice T—C, for instance, he says.

> I apperceived T immediately, and its meaning for me was just vaguely something which I knew, and which vaguely I knew sufficiently well, to contrast with anything else. I had no feeling of power to define it, but had an abstract knowledge that I had the power to define it. Then I went to C. Exactly the same process for it.

B. We have seen in discussing the signs of Automatism, how comparative judgments grew less frequent in the first part of the 2nd Series. In the last 301 expe-

riments (the 2nd part) of this Series they almost disappeared.

	1-20	20-40	40-60	60-80	80-100	100-120
S^1	2	6	2	2	—	
S^2	8	4	4	1	3	—
S^3	13	6	3	—	—	

Again comparative judgments, as introspective evidence tends to show, were no longer *consciously* present towards the end of this series. The Subjects frequently affirmed that there was no comparison made between the alternatives. In some cases the alternatives offered no ground for a comparison.

« No weighing or comparison. The two tastes were too dissimilar »—or e. g. S^2, N° 116; « I understood L as bad from the beginning. I went to Z, which I decided to take, because it was good. There was no comparison. The two facts *were quite apart*; L = bad; Z = good. »

As we shall see, in our chapter on Relativity of Values, the value of one alternative was usually conditioned by that beside it. Nevertheless, at times, it seemed as if alternatives were taken or rejected on their *absolute values;* there being no appreciable mutual influencing, and certainly no conscious comparison.

We may affirm then, that Volitional Economy is manifested in this, that explicit comparisons gradually disappear altogether, or at least become implicit, and so, escape observation.

C. Volitional Economy is also seen in this, that choices are made and realised, without there being present to the mind, at least clearly, any motives or any values.

Thus S^1 says : « I had no consciousness of values ; two words, then immediately the judgment : It's the other »—again « Looked

at B, and took it automatically without any consciousness of value. « From S³ we take the following example—experiment N° 82.

« Immediate recognition in the order Z—J; immediate choice of Z. No formal reasons for the choice were present, but I knew I could give them if necessary in any required detail. I think this was an instance of subconscious impulsion—my reasons were not in the least conscious. They were however, near the threshold of conscience and I was aware I could give them. »

Volitional Economy and Hesitation.

It suffices for the moment to point out that Hesitation is, so to say, the natural enemy of Volitional Economy. It upsets Automatism, causes the mind to weary itself and waste its force by useless oscillations. It doubles and trebles the usual number of phenomena, lengthens, often immensely, the time-duration, upsets the continuity and evenness of the choice-process and introduces irregularity and inconsistency. On such occasions, Automatism sometimes seems « to take revenge », for the Hesitation may close abruptly by the lightning flash of an automatic tendency towards the Critical Zone; the choice thus finishes suddenly, and the Hesitation is stopped.

James well describes such motivations (1).

It often happens, when the absence of imperative principles is perplexing, and suspense distracting, that we find ourselves acting, as it were automatically, and as if by a spontaneous discharge of our nerves, in the direction of one of the horns of a dialemma. But so exciting is this sense of motion after our intolerable pent-up state that we eagerly throw ourselves into it. « Forward now », we inwardly cry, « though the heavens fall ».

This reckless and exultant espousal of an energy, so little premeditated by us that we feel rather like passive spectators cheering on the display of some extraneous force than like voluntary agents, is a type of decision too abrupt and tumultuous to occur often in humdrum and coldblooded natures. But it is probably frequent in persons of strong emotional endowment and unstable or vacillating character.

(1) *Principles of Psychology*. Vol. II, p. 532.

Measurement of the Degree of Automatism.

Fortunately we were in a position, owing to our third Series, to test the force or degree of the Automatism, manifested in the different choices, by our Subjects.

It will be remembered that in the third Series the instruction was reversed and the Subjects were told to « *choose the worst and drink it* ». All the other conditions of the experiment remained the same.

Up to this time the Subjects had chosen *the best*, or what, for the moment, seemed to them to be the best. Naturally a strong *automatic* habit of taking the best sprang up. This Automatism had now suddenly to be fought against; the *worst*, not the *best* substance was to be chosen and that ' as quickly as possible '.

The question now arose; *in what type of choices was the Automatism strongest*. In order to answer this question, a means of *measuring* or estimating the degree of Automatism had to be found. This task proved less difficult than might be expected.

When enumerating the various signs of the presence of Automatism, we mentioned among others.

A. The shortening of Reaction-Times;

B. The occurrence of Active Tendencies.

A. From an examination of the Reaction-Times we found, that they were shortest in choices, where the Subject chose his favourite substances; and, that in general, there was a direct proportion between the shortness of the Reaction-Time and the value of the substance chosen (1). This fact seemed to indicate, that in general, *Automatism was strongest in agreeable Hedonic choices*. We could not however, from this coincidence alone affirm this law, as the shortness of Reaction-Times in the cases mentioned, might be solely

(1) See our section on the Measurement of Motive-Force.

due to the force of the motives at work, and not to the increasing Automatism.

B. An analysis of the introspections of the third Series, with a view to discovering in what cases, Active tendencies *to take the best*, still prevailed, in spite of the changed instruction (1), gave us a better means of estimating the degree of Automatism in the case of the different choices.

A few examples, of these introspections will make this matter clear.

Active Tendencies, Showing a high degree of Automatism.

1. S². Feb. 17th. Choice K—L. L (the worst) taken. R. T. 533 (2).

Saw K, then L. I took L, still I felt there was a tendency to take K—there was a mental intention for K. The movement was for L, but there was a certain deviation.

2. S¹. Feb. 17th. Choice Z—J. J (the worst) taken. R. T. 610.

Immediately after reading Z, there was a tendency to react and to take it. The consciousness came in some way, ' the worst, take the worst '. I read J and then there was the consciousness, ' Its this one '. I took it.

3. S². Feb. 17th. Choice J—K. J (the worst) taken. R. T. 534.

I saw K. A movement destined for K began at once. Then I turned the movement to J.

4. S³. Feb 15th. Choice T—J. J (the worst) taken. R. T. 562.

Immediate recognition in the order T—J. T appeared as a pleasant neutral taste, J as an unpleasant neutral taste. I chose J as obviously the worst. In taking the glass I tended to take T. A tendency which I repressed.

Our method of procedure was as follows. 1. All the appearances of the various alternatives for each Subject in the third Series were counted. 2. All the « *active tendencies* » (to take the various substances) were also counted. The lists were as follows :

(1) See above.
(2) R. T. means Reaction-Time.

	S^1		S^2		S^3	
	NUMBER OF TIMES PRESENTED	TENDENCY TO TAKE	NUMBER OF TIMES PRESENTED	TENDENCY TO TAKE	NUMBER OF TIMES PRESENTED	TENDENCY TO TAKE
B	7	0	7	0	9	0
C	7	0	8	0	9	0
J	7	0	6	0	8	0
K	7	2	8	5	8	2
L	7	0	7	0	9	2
T	7	1	6	3	7	1
V	7	0	7	0	9	2
Z	7	2	7	2	9	3

Automatism in *Agreeable* Choices.

On comparing these lists, with the lists of the Subjects favourite tastes (1) it will be seen *that the active tendencies occurred in the cases of the Subject's favourite tastes*. For S^2, for instance, K, T, and Z were in order, his favourite substances, and his active tendencies were for K, 5, for T, 3, and for Z, 2 (2). These active tendencies, due directly to the strength of Automatism, show that *Automatism is strongest in the case of agreeable hedonic choices*.

Further confirmation of this theory, that the strength of Automatism is in direct relation to the agreeableness of the choice, is found in the fact that such choices are simpler i. e. are less encumbered with phenomena, and are more regular than choices of different nature. In a word the signs of the presence of Automatism are constantly found in such choices.

(1) Vide Chapter II.

(2) N. B. K was a great favourite with S^2. He spoke of the choosing of it as being *a perfect habit*. Here, *in spite of his duty to reject it*, he tends towards it five times out of eight. Automatism in such cases clearly grows very strong.

CHAPTER VIII.

HESITATION.

Hesitation and Motivation.

So far we have treated of *normal* Motivation, and have studied its evolution, and gradual progress towards Automatism under the economising *tendency* of Volition.

In the present chapter we shall examine some cases of *abnormal* Motivation, and shall see, in Hesitation, an anti-economic, and injurious influence which affects the Will.

Hesitation occurred frequently, and in various forms during the course of our experiments. At times it caused a great lengthening of the duration of the reaction, at times it did not seem to affect it. On some occasions it was accompanied by oscillations, to and fro, between the alternatives, or by a series of slight nervous movements in the hand or arm. On other occasions there were no oscillations, but *the mind seemed to hang in anxious suspense* between the two decisions. Hesitations were usually accompanied by painful or depressing feelings; such as feelings of discouragement, disappointment, regret and annoyance, effacement, lassitude, disgust, and even anger.

Many words, adjectives and substantives, were used to describe it, in its various degrees of intensity, and in its various stages of development; such as confusion, indecision, bewilderment, perplexity, dazzled, dallying, mooning, « at a loss », and perhaps even a certain kind of « listlessness » or « vacuous hesitation ». The spe-

cific feeling of Hesitation was, however, the phenomenon usually recorded.

Examples of Hesitation. It may be well to give one or two examples of Hesitation, in the form it commonly took in our introspections.

1. S², Dec. 9. Choice V—B. R. Time 1854.

The experiment lasted long because I did'nt and could'nt arrive at a decision. I saw V first and then I commenced a ' va et vient ' movement at least five times.

I took at the end V, without having made a decision by preference—but, *just to finish*. When I had the glass in my hand I made a grimace, indicating disgust and fatigue. A feeling of pain came after the experiment ; the cause of which was that I had to take a glass without having preferred it. I took it with a gesture of indecision.

2. An example from an introspection of S⁴ in the first series.

Remembered X and J as being both unpleasant. I was disappointed and hesitated, looking blankly at the card. Next I looked slowly for the glasses. In saw X first and turned from it with disgust. Then I saw J and remembered it was anything but nice. Again I hesitated—I could not take X and I did not want J. At a given moment I reacted mechanically and took J.

These examples of Hesitation bear out James' graphic description (1) of such psychical states : « We grow tired of long hesitation and inconclusiveness, and the hour may come when we feel that even a bad decision is better than no decision at all. Under these conditions it will often happen, that some accidental circumstance (2), supervening at a particular moment upon

(1) *Principles of Psychology*. Vol. II. p. 532.

(2) Very frequently Hesitations end in abrupt, inexplicable choices. Mr Stout too (*Manual of Psychology*, p. 608) notices this point and draws from it, the conclusion, that *a psychological disproof of Free-Will is impossible*. We quite agree with his conclusion, for the reason he adduces, as well as for others. His words are. « Now it must be admitted that the transition from the state of indecision to that of decision is often obscure, and that it frequently appears to be unaccountably abrupt. This makes it difficult or impossible to give a definite disproof of the libertarian hypothesis on psychological grounds. »

our mental weariness, will upset the balance in the direction of one of the alternatives, to which then we feel ourselves committed, although an opposite accident at the same time might have produced an opposite result. »

Different Kinds of Hesitation.

Hesitations, as we shall see presently, vary in degree or intensity. Whether, however, there are different species of Hesitation, it is difficult to decide. The fact that some Hesitations, cause a great lengthening of the Reaction-Time, while others do not affect it, suggested to us that there might be, so to speak, *a purely psychical species of Hesitation*, and also a *semi physiological species*. This supposition was strengthened by the fact, that in some very quick reactions, wherein there were painful Hesitations, the Subjects spoke of « mental suspense » and « purely mental Hesitation ». On the other hand, the semi-physiological Hesitations seemed to be accompanied by feelings of fatigue, disgust, and physical oscillations of the hand or the eye. Oscillations were found in both the supposed species.

« Saw alternatives six times. Could'nt decide. » R. T. 2131 (1).
« Saw alternatives five times; Disgust and fatigue ». R. T. 1854.
« Strong Hesitation. Saw Alternatives twice. R. T. 2554.

« Saw alternatives five times. Could'nt decide ». R. T. 678.
« Saw alternatives three times » R. T. 378.
« Strong Hesitation » R. T. 569.

There were many other similar cases of long and short-duration Hesitations. In order to determine *if they marked two different species of Hesitation*, a « curve of dispersion » was made out, for all the Hesitations of S^3 (the Subject who hesitated most). The curve was based on his 126 experiments of the second half of the 2nd series. There were in all 17 Hesitations—three were under 500 sigma ; twelve were 1250 sigma ; and four were between 500 and 1250 sigma. There was therefore no indication of the existence

(1) R. T. means Reaction-Times. It will be noticed that the Reaction-times on the left are much longer than those on the right.

of two species of Hesitation, discernible from the point of view of Reaction-Times.

Another division of Hesitations was suggested by the fact, that sometimes Hesitations were accompanied by oscillations and sometimes not. This fact, however, seemed rather to indicate that distraction of mind and confusion, from which oscillations arise, are not necessary parts of Hesitation.

Still another division of Hesitations was suggested by the description of states of mind like the following :

« There was an interval of mooning, followed by a conscious effort to make up my mind ; that interval seemed to be a complete void ; listlessness ; my mind was blank and passive. »

There seems to be something in common between such states of consciousness, and Hesitations in the ordinary sense. Doubtless the essential feature, *the feeling of indecision*, is absent, but there is something of hesitancy present. Let us take further examples.

« Immediate recognition, of the words, followed by a slight lull in mental activity, I was not dazed but there was a lull. » Such lulls are thus described. « I found my mind wholly intent on the card, immovably attached to it, passively rather than actively fixed on it, » « it seemed to occupy all my attention and to hold me », « I sat there stupidly, before it, looking at it, and nothing came, » « I rested on T, querying it, T ? T ? » Such vacuous, indecisive, states of mind seem to resemble Hesitation very much. On the other hand, they differ little from the « fixations » of mind, spoken of by Psychologists who study Associations, and although their occurrence in volitional actions may seem remarkable, it is probably safer to regard them rather as « voids » and « fixations » than as forming a special class of Hesitations.

Hesitation in our Researches.

To illustrate the frequency of Hesitations in our researches let us take the second series which comprised 574 experiments, and divide it into three groups

of 191 experiments. We find that in the first group there were Hesitations (1) in approximately 25 % of the experiments, in the second group 23 %, and in the third group 20 %. The Subjects S^1 and S^3 were equal with respect to Hesitations; S^2 had considerably more Hesitations than the others, and of a more violent nature.

Hesitations occurred both during the choice-process, and after it, when the choice had to be realised. During the choice-process, they occurred (2), for instance :

1. At the moment the Apparition of the Excitant, if Recognition did not at once follow.

2. At the moment of Recognition, if both were recognised as very bad, or as equivalently bad or good.

3. On the occasion of distractions, of absence of motives, or of « thought getting too abstract and too far from sensations and images. »

4. In the case of choices where a mental habit of hesitating had been contracted.

The Evolution of Hesitation.

We shall now consider as far as possible, the causes of the origin, development, and final disappearance of Hesitation (3). In order to do so clearly we have had to trace the whole history of various types of Hesitation. Our method was that indicated in our chapter on Motivation-Evolution.

All the introspections dealing with a certain choice, in which Hesitations occurred, e. g. the L—C choice of S^2, were examined in chronological order. The Hesitations did not, perhaps appear at first, then they

(1) We understand Hesitations here in *a very wide sense*, so as to include those types of « moodiness », etc., just described.

(2) We do not here give a complete list. For each Subject the occasions of Hesitations were different.

(3) This process may be considered either as an *Evolution* of Hesitation or a *Devolution* of Motivation ; vide. chapter VI.

came, developed, and disappeared, or if we may say so, they were «cured.» *We were thus enabled to watch the whole history of the Hesitation, to determine its causes, and to examine how it was got rid of.* By drawing Reaction-Time curves we could contrast and compare various Hesitations, getting thus a certain insight into their different degrees of intensity.

As a first example, we take the L—C choices of S^2. There were nine in all. We give the introspections in full. It will be seen that the Hesitation begins in N° 3, and ends with N° 7—the Subject having got rid of it by making an effort to choose decidedly. It will be remembered, that both L and C were very unpleasant substances.

The L—C Choices of S^2.

1. Nov. 30th R. T. 759.

I first saw L without understanding it. I turned to see C, which I recognised immediately as bad. I saw again L and took it, with a feeling of disappointment. I understood that C was perhaps not as bad as L. I had a feeling of regret and disappointment. I did not drink L until long after. I had it in my hand without wishing to drink it.

2. Dec. 10. R. T. 1513.

I was a little distracted first. I saw L but I understood it only superficially. I did not make an appreciation of its value. Then I saw C which made me return immediately to L.

I took L probably because I was driven back from C. For when I had the glass in my hand the veritable value of L then came home to me. I had a profound regret for taking it, but that regret had nothing to say to C. It was for L.

When I had the glass in my hand I had feelings of displeasure and annoyance. I did not compare the two values. I consider myself responsible for taking L.

3. Dec. 13th. R. T. 2131.

I saw C then L. I passed from one to the other about six times. It became impossible to decide for one or the other. I was discouraged, that is to say, I was even effaced a little. I had no mind to take a glass. I raised a glass to react but did not drink it. I

had no feeling of disgust all the same. I did not compare the two. I had no preference for C. I took it just to react. I did not decide for either. There was no question of a preference as I only took it to react. It came to mind that I was to drink it. I said « I'm not going to drink it. » For a moment I thought I ought to drink it. I held it in my hand for some time I did'nt replace it at once. »

4. Dec. 20th. R. T. 678.

I don't know which I saw first. I saw both about five times. I could'nt make up my mind. There was no spontaneous decision. Then I wished or felt the duty to decide for one or the other. I could'nt still decide. Then I took C by lassitude, with a gesture of indifference.

I could not get myself to drink it, although I felt (I was conscious) that I ought to drink it. I considered the case as though that duty was « *hors de cause* ». After the experiment I remembered that I considered that L and C are equally bad.

5. Jan. 18th. R. T. not recorded.

I saw C, then L, then immediately I came back to C. Then the choice to be made between C and L came back to my conscience, with the memory of what a task it was formerly. That discouraged me from the beginning. Then I remembered that discussion was useless. I took C to finish the matter. I probably took C because it was more present to consciousness and because I had waited longest on it.

I took the glass very slowly, as though the taking of it disgusted me. I felt a repugnance to drinking. Then with enormous difficulty I drank, *thinking I must all the same drink.*

6. Jan. 24th. R. T. 1904.

I saw C first, then L, then C, then L. I could'nt get out of it. The apparition of the excitant was irregular and that fact, increased my discontent. I took C by duty.

Then I found it almost impossible to drink it. Then I put it away, but, afterwards, by duty I drank it. C is more known to me than L. C drives me back quicker and more spontaneously than L. Still I felt that I could take C quicker as it is more familiar to me. L is more mysterious and unknown. The choice was not entirely hazardous, « i. e. without motivation ».

7. Jan. 30th. R. T. 1141.

I read C, then L. Then I had the consciousness that it was

those two which made so difficult a choice in previous experiments. *I made up my mind that that was not going to happen now.* All the same I felt very distinctly the tendency to go from one to the other. But I fixed my eyes on L. Then I took C. C seemed to me more familiar. I took it quickly enough. In taking it I had a consciousness of my duty to choose.

8. Feb. 1st. R. T. 937.

I read C, then L. Always the same thing—I gave a laugh of discouragement more or less. I took C quickly. Then I recalled a similar choice in a previous experiment. The choice was very easy for me; there was no judgment of comparison between the two.

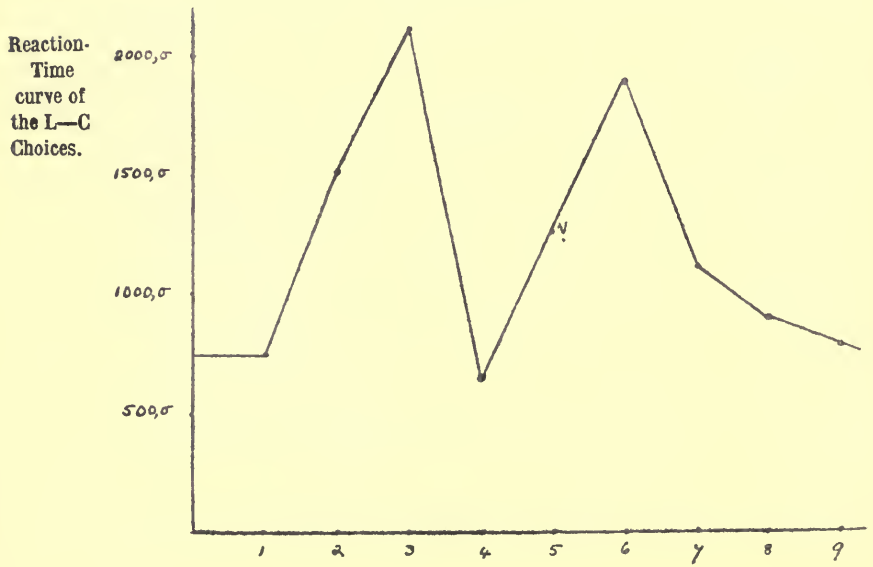
I recalled all that passed before. I did not take the trouble to prefer one to the other. I chose C automatically. I do not wish to say that C is better than L.

9. Feb. 8th. R. T. 860.

I saw L, then C. Then I had a slight recollection of long discussions I used to have between them. Then I decided brusquely to take C.

We find in these introspections all the *signs* of Hesitation.

1. An irregular Reaction-Time curve.



This curve shows the extreme *irregularity* introduced by Hesitation into the normal descending curve of shortening Reaction-Times. From N° 7 onwards, the curve is normal—*as the Hesitation was cured.*

2. There are *inconsistencies* or changes in the choosing. C is taken seven times and L twice. Yet C is not considered better than L. (vide. N° 8.) « I took C automatically. I do not wish to say that C is better than L », or N° 3; « I had no preference for C ».

3. The duty of drinking is disobeyed twice, in the third and fourth experiments. This refusal of the task imposed was quite exceptional. It only occurred in cases of violent Hesitation.

4. Oscillations occurred three times; feelings of discouragement, annoyance, regret, and disgust also occurred.

5. The « abrupt decisions » to which we have referred, and about which James writes, are also to be found several times; « I took C to finish the matter » or « I took C as it seemed more familiar », imply, of course, purely contingent, extrinsic motives.

The L—C Hesitation. 1 Origin.

This Hesitation was prepared for by the careless, superficial motivation of the first, and second choices. Doubtless, Hesitation usually presupposes a certain equivalence of values between two alternatives. Still its *immediate* cause must be looked for in other circumstances. In the present case careless motivation, plus the repining over the two first decisions of this L—C series, predisposed S^2 to hesitate. In N° 1 he says; « I saw L and took it with a feeling of disappointment... I had a feeling of regret and disappointment », and in N° 2; « I had a profound regret for taking it (L) ».

2 Development.

The third, fourth, fifth and sixth experiments constitute the development or *process of the Hesitation*; in-

consistencies, fatigue, discouragement, etc., are here found. The choice becomes a kind of martyrdom. « The choice to be made between C and L came back to my conscience, with the memory of what a task it was formerly. Then I remembered that discussion was useless. » Indeed the Subject, in these choices felt as if he were in the clutches of a powerful enemy, from whom there was no escaping : « It became impossible to decide » ; « I could'nt make up my mind »; « I could'nt get out of it ».

3 The Healing of the Hesitation.

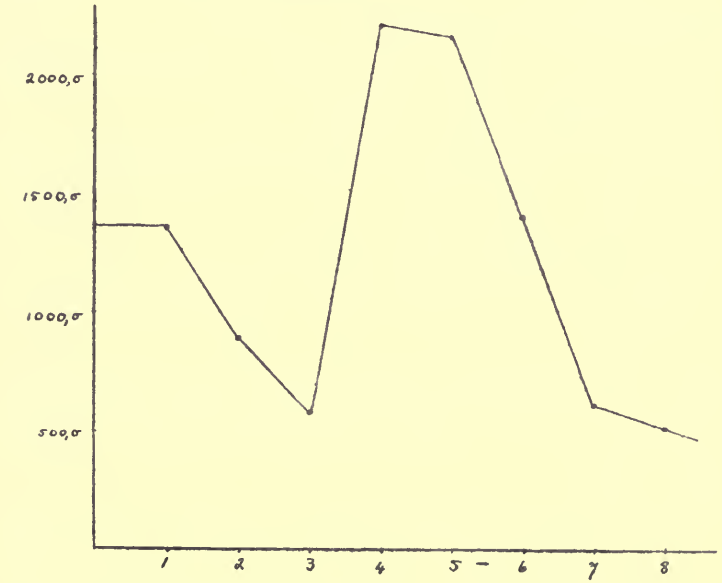
The third stage in the series of L—C choices was *the Healing of the Hesitation*. In N° 7, the Subject calls to mind that the L—C choice meant inevitably a Hesitation, and at once makes up his mind that such a state of things must cease. « I made up my mind that that was not going to happen now ». Feeling nevertheless, the tendency to begin the oscillation, he resolutely fixes his eyes on L. This action helped him out of the accustomed Motivation-Track. The familiarity of C now strikes him. *He seizes on it, at once, as a motive; chooses C—and saves himself from the Hesitation.* In the next two choices, the eighth and the ninth, he acts swiftly and decidedly, in the same sense, and escapes Hesitation.

This Evolution of Hesitation lasted, from Nov. 30th, to Feb. 8th, 1911. Its chief interest lies in the fact, that it shows how a habit of Hesitation may arise, and how it may be cured. Once the Subject realised that a discussion of reasons was for him, useless and dangerous in the matter in question, and that a swift movement towards the most familiar alternative was his wisest, and only course, he was saved. Hesitations disappeared, and with it irregularities in Motivation and in Reaction-Times.

It may be of interest to give a few more examples of

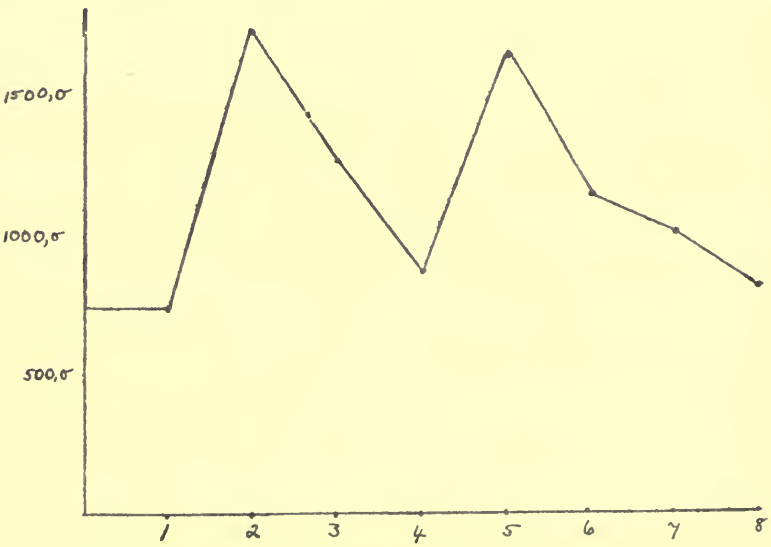
Hesitation curves. We take them also from the experiments of S^2 in order that they may be comparable with that already given.

1. J—V choice of S^2 (1).



Hesitation Curves of the J—V, and J—B, Choices of S^2.

2. J—B choice of S^2 (1).



(1) Vide appendix, for the Introspections corresponding.

In the J—V series, to which the first of these curves corresponds we find some further points worthy of note.

1. *Irresponsible choices occur.* " I regretted to have chosen 'tellement à la légère ". « I took J in an irresponsible way. »

Additional Characteristics of Hesitation.

2. *Changes are made at the last moment.* S² was just on the point of taking J, when the thought came, « the other is not so bad » ; he changed at once and took it.

I chose J. At the moment of choice I had the idea that J was better. Hardly had I taken the glass into my hand when I was convinced that I was deceived.

3. *Actual feelings of despair are experienced.* « Un véritable tâtonnement d'où je sors par désespoir. »

4. Incertitude as to relative values appears to be due to overhasty valuations.

5. The *feeling of hurry and « fuss »* accompanies some Hesitations. « There was no discussion, one is in too great a hurry ; if in the beginning one were resolved to weigh the values, it would go quicker ; now we « fuss about » to see which of the two is going to attract us. »

6. The most violent Hesitations seem to be those in which there is no oscillation, and in which we grow angry. « A Hesitation such as I never had as far as I can remember. In the L—C choices I found a difference with respect to familiarity. *Here I found no difference whatever.* There was absolutely no reason which pleaded for one or the other. Then I swore with a gesture of discontent... *During my Hesitation I did not pass from one to the other, but hung anxiously between the two.*

In the J—B series (corresponding to the second curve given above) we find the following additional points of interest.

1. S² rids himself of Hesitations by taking *the more familiar.* This happened in the three series of Hesitations given.

« I took B as it seemed the more familiar. »

« I took C as it seemed the more familiar » etc.

2. *Hesitation then is healed by recalling the uselesness of discussions of motives in such cases*, and by a quick taking of the more familiar. « I recalled the difficulty I always have for choosing between the two. I took B immediately. The word B

seems to me more familiar. » It is interesting to notice that S^2, here employs precisely the same method of curing himself which he employed in the L—C Hesitations — *he uses almost the same words.*

I had the consciousness that it was these two which made so difficult a choice in previous experiments... Then I took C. C seemed to me to be more familiar.

Hesitation and Inconsistency.

Examining the three series of Hesitations of S^2, from the point of view of Consistency and Inconsistency, we found :

In the L—C choice, he took C *seven* times and L *twice.*
In the J—V choice, — V *five* — J *thrice.*
In the J—B choice, — B *six* — J *twice.*

Having examined his other « Hesitation series » we found likewise that they were choices in which he constantly changed his stand-point.

The question now arose. *What relation exists between Hesitation and Inconsistency?* We have assigned the presence of Inconsistencies as a mark of Hesitation. Are they a direct consequence? That is to say, does Hesitation invariably cause Inconsistency? Or, are both Inconsistency and Hesitation consequences of Equivalence of Values?

It was first of all necessary to prove the correlation of Hesitation and Inconsistency. This was done as follows.

1. For each Subject a list of choices in which Inconsistencies occurred (in which he now chose one, now another alternative) was drawn up.

2. For each Subject a list of choices in which Hesitations occurred was drawn up.

3. The two lists were put in comparison.

When this was done it was found that the two lists corresponded in 87,5 % cases.

For S^1 there were three, for S_2 seven, and for S^3 six *uncertain choices*; that is to say, choices in which now one, now the other alternative was chosen. In each of these cases we counted 1°, the number of times the standpoint was changed, 2° the number of Hesitations occurring in these choices.

Table, showing coincidence of Hesitation and Inconsistency.

CHOICES in WHICH CHANGES OCCURRED	S^1		S^2		S^3	
	NUMBER OF CHANGES	NUMBER OF HESITATIONS	NUMBER OF CHANGES	NUMBER OF HESITATIONS	NUMBER OF CHANGES	NUMBER OF HESITATIONS
J—B	1	2	2	3	1	2
T—K	1	—	4	3	—	—
V—B	2	5	—	—	—	—
L—C	—	—	2	5	—	—
V—K	—	—	1	2	1	2
J—V	—	—	3	5	—	—
C—B	—	—	1	2	—	—
Z—T	—	—	3	6	—	—
T—B	—	—	—	—	2	2
L—B	—	—	—	—	3	2
J—L	—	—	—	—	2	2
T—L	—	—	—	—	1	—

It will be noticed that only *in two cases*, Hesitations were absent when Inconsistencies were present. It will be noticed also, that there are indications of the existence of a relation between the frequency of Inconsistencies and the frequency of Hesitations.

From this table we cannot conclude that Hesitation

is the *cause* of Inconsistency. Twice we have Inconsistency without any Hesitation. In some cases we have Hesitation without Inconsistency e. g. in the V—C, V—L, and K—L choices. There is then no perfect concomitance between the two. The Cause of Inconsistency.

We cannot however admit, that *Equivalence of Values* explains all cases of Inconsistency. The choices J—L, L—B, V—K, T—B, were certainly not cases of Equivalence of Values (1), and yet Inconsistencies are found in these choices.

What then is the cause or condition of Inconsistency? We are unable to answer this question definitely. There seems to us, to be a close relation between it and Hesitation, as introspective evidence also, tends to show, but that such a relation is one of *Causality* we are not in a position to affirm.

Prescinding from the personal character of the Subjects, we found that, if having made a choice, they allowed themselves to repine over it, or to be annoyed for having made it; or if they made a choice in a haphazard, irresponsible manner, that is without careful motivation, or if they chose without clear knowledge of the relative values of the alternatives, they were extremely likely to hesitate when the same choice occurred again. Indeed careless and superficial valuations, and futile repinings over past choices, seem to predispose strongly towards future Hesitations (2). Conditions of Hesitation.

There is too a correlation between Hesitation and Discouragement. When one hesitates or anticipates Hesitation, one is instantly discouraged. « The choice

(1) For a like reason Equivalence of Values cannot be considered as the cause of Hesitation. *Hesitations often occur where there is no Equivalence of Values.*

(2) S[3] stated in one of his introspections, that when his thought became « too abstract and too far from sensations and images he grew doubtful. » This points to another condition of Hesitation.

C—L came back to my consciousness with the memory of what a task it was formerly. *That discouraged me from the beginning.* Then I remembered that discussion was useless. »

A more important, though kindred correlation is that between Hesitation and Negative Values ; that is to say, between Hesitations and disagreeable choices. When the Subject recognises that he has to chose between two bad substances, he is at once discouraged, and predisposed to hesitate. He finds himself between the devil and the deep sea. We were able to confirm numerically, this correlation between Hesitation and Negative Values.

We drew up the following list of choices, in which all three Subjects hesitated, with the approximate number of Hesitations.

J—V	11	Hesitations
V—B	9	»
L—C	8	»
J—L	7	»
J—B	7	»
L—B	7	»
K—L	6	»
V—K	6	»
V—C	5	»
V—L	5	»

We notice here, that in nearly every case, the choices are between unpleasant, negative substances. L and V occur five times each, J and B three times each, C and K twice each. Now C, L, J and B were disliked by all, K was disliked by S^3, and V was not very popular. Both T and Z are absent—they were the « good substances » par excellence (1).

Hesitations did not occur in cases of agreeable choices save rarely (2). When they did occur, they were by no means so painful as Hesitations in the case of disagreeable choices. To quote S^2

(1) T was not popular with S^3.

(2) In no case of an agreeable choice did all three Subjects hesitate.

— « I believe all the same, that the choice between two good substances does not provoke so long a discussion as that between two bad substances. One is more at one's ease in the choice. »

In general, then, Hesitations occur much more frequently in disagreeable choices, and seem in a certain sense to be conditioned by them, just as they, in a certain sense seem to condition Inconsistencies. Indeed the unpleasant experience of choosing between two disagreeable substances tended to inhibit volitional functioning—and to justify the theory, formulated by Mr Stout (1) : « In principle it seems a safe generalisation that agreeable experience is favourable, and disagreeable experience is unfavourable, to the effective discharge of mental functions. »

In speaking here of the conditions of Hesitation it is necessary to refer to the tendency to hesitate, due to the persistence of the choice-habit formed. In our chapter on Motivation-Tracks we have pointed out that such phenomena as Hesitations tend to reappear when the same choices recur.

We are not in a position to inquire into the physiology of Hesitation. In any case little is yet known of the state of the brain cells during volition. It is evident, nevertheless, to the plain man, that when one is in robust health, in good humour, and when the weather is bright and fine, that one is far less likely to hesitate, than at other, less congenial, times.

The Healing of hesitation.

Indecision, scrupulousness, and Hesitation are unfortunalety by no means rare. Many people are almost incapable of acting decisively and of choosing resolutely. They waver, and change, and doubt, wasting time and energy in endless deliberation. They fret, and repine, now tending this way, now that.

(1) *Manual of Psychology*, p. 242.

They are never satisfied with a decision made, and never confident about future choices. Other persons, without being at all so irresolute, now and again find themselves surprised by disagreeable and painful states of indecision and doubt.

As we have already entered fully into the analysis of these ' Hesitations ', we shall confine ourselves here to a few suggestions as to the method of healing Hesitation.

1. To prevent giving way to the various signs of Hesitation which we have pointed out. e. g. repining or getting annoyed or angry over past choices (1).

2. To prevent causes of Hesitation e. g. careless and irresponsible motivation, choosing without a precise knowledge of the relative values of the alternatives, or choosing in a hurry.

3. To formulate some principle, corresponding to that of S^2, i. e. « choose *the most familiar* in cases of Hesitation », and, when we recognise the presence of a tendency to hesitate, to act at once blindly, according to the said principle.

In general then, the method to cure Hesitation, must be, firstly, to banish everything that is calculated to predispose us to it, and secondly, *to hold firm to one maxim* or principle in times of doubt.

Later on, in our last chapter, we shall dwell on the immense profit to the Will and Character to be had, by clearly fixing, and defining, the various scales of values which we utilise in our various spheres of occupation, and by knowing them so well, that almost automatically we may apply them in daily life. By this means we economise Motivation, and store up Volitional Energy. We choose swiftly and easily, in a word, automatically, and thus leave no place for Hesitation.

(1) These suggestions are based on the consideration of the actual results of our experiments.

General Remarks on Hesitation.

From what we have said of Hesitation it will readily be seen that it is a malady or disease of the Will. It renders impossible serious Motivation, it runs counter to Volitional Economy, wastes the force of the mind, fatigues, and discourages. It leads to habits of irresponsible, hap-hazard choosing, and even neglect of duty. Indeed the only times that Subjects, in our introspections, disobeyed *the instruction*, were after Hesitations. Doubtless they found themselves too fatigued and dispirited to make the necessary additional effort to drink.

What we regard as the chief evil of Hesitation is, that it destroys all possibility of *acting on strictly reasonable grounds*, of deciding for intrinsic motives. Subjects in Hesitation seize on the first motive which comes to mind, no matter how unimportant. To save themselves the pain of further deliberation they choose recklessly ; « I could'nt arrive at a decision. Then I preferred B without really knowing the reason » ; « I chose X, to escape the Hesitation, without having any conscious motive for X ». Such motivations, in which purely extrinsic motives win, naturally lead to habits of random choosing.

To conclude, we quote a passage from James who writing of « *obstructed* » and « *explosive* » Wills, which represent the two extremes, Hesitation and Temerity, and which, nevertheless, as it seems to us, are closely akin, says (1) :

« Unhealthiness of will may come about in many ways. The action may follow the stimulus or idea, too rapidly, leaving no time for the arousal of restraining associates—we then have a precipitate Will. Or,

(1) *Principles of Psychology*. Vol. II, p. 535.

although the associates may come, the ratio which the impulsive and inhibitive forces normally bear to each other may be distorted, and we then have a will which is perverse. The perversity in turn may be due to either of many causes—too much intensity or too little here, too much inertia or too little there; or elsewhere too much or too little inhibitory power. »

CHAPTER IX.

HEDONISM.

Object of the Present Chapter.

We do not intend, in the present chapter, to enter into the discussion of Hedonism as an Ethical theory. Our opinion coincides with that of James, that, « *the silliness of the old-fashioned pleasure-philosophy saute aux yeux* » (1). Neither do we propose to discuss what we regard as the completely erroneous theory of Bain, « that the motives to voluntary action are unquestionably summed up in pleasure and pain » (2). We are of opinion that there is not a shred of evidence for such a theory. In our own researches, although our aim was to exclude the possibility of any but hedonic motives, and although we took every means calculated to bring about hedonic motivation, there was, always, a considerable percentage of non-hedonic motives. And, it was but rarely that *purely* hedonic motivation, that is, motivation uninfluenced by deontological, aesthetic or other considerations, occurred.

It might be that to *reflection*, writes James, such a narrow teleology would justify itself, that pleasures and pains might seem the only *comprehensible and reasonable* motives for action, the only motives on which we *ought* to act. That is an ethical proposition in favour of which a good deal may be said. But it is not a

(1) *Principles of Psychology*. Vol. II, p. 55.
(2) Notes on Volition. *The Mind*. April 1891.

psychological proposition, and nothing follows from it as to the motives upon which as a matter of fact we do act. These motives are supplied by innumerable objects which innervate our voluntary muscles by a process as automatic as that by which they light a fever in our breasts. If the thoughts of pleasure may impel to action, surely other thoughts may (1).

It may seem quite superfluous to enter into an analysis of the manifestations of Hedonism in choices. This work has already been done by artists and litterateurs in every age. The psychology of pleasure-pain is no hidden book. All the signs of likes and dislikes, whims and fancies, all the outward marks and typical ways of the votaries of pleasure, have been common reading matter since the days of Horace. The human race has not had to wait for the scientific direction of Wundt or of Ebbinghaus, to observe and know these things.

From such considerations one would be led to suppose that any further inquiry into the Psychology of Hedonism is unnecessary. Yet it is not so. The knowledge that we have up to the present is not sufficiently methodical or precise. It is not, for instance, of a nature to enlighten us as to the relations existing between Hedonism and Automatism. Are we, for example, to admit that habits of pleasure-seeking become quickly automatic? And if so, how far do they become automatic? Does responsibility entirely disappear? Are hedonic attractions, under certain definite circumstances irresistible? What are the marks of such states of Automatism in matters of pleasure seeking?

Again, when pleasure-motives and deontological motives conflict, what determines the result of the conflict? Is it determinable? What are the conditions, external and internal of such conflicts?

(1) *Principles of Psychology*. Vol. II, p. 552.

Questions of this nature, can only be solved, if they can be solved at all, by very exact psychological researches, that is, researches under definitely determined conditions. Take, for instance, our affirmation, « *that although, in our researches, we took every measure calculated to bring about hedonic motivation, there was always a considerable percentage of non-hedonic motives* ».

Examining the results of our preparatory series of experiments, in which the Subjects had to choose between substances of various degrees of hedonic value, and which, at times, inspired extremely strong attractions and repulsions ; we find that, of all the motives recorded by S^1, only 70 %, and of all those recorded by S^4, only 76 %, were hedonic (1). So that, even in conditions eminently favourable to hedonic motivation, for one Subject 30 % and for another 24 % of the motives were non-hedonic.

Our object then, in this chapter, is not to call in question the merit of the psychological observations of artists or litterateurs, or indeed to add to the number of those observations, but rather to indicate a method of determining the real significance of these signs or marks of Hedonism, and of showing the form they take in choices made under definitely determined conditions.

Method of Investigation.

Our method was, in general, that indicated in our chapter on Motivation-Tracks. We considered, apart, whole series of hedonic choices, such, for instance, as all the T—K choices of S^2, and watched from choice to choice, the gradual evolution of hedonic tendencies, noticing as far as possible the effects of Hedonism on Motivation.

Hedonic motives, in our experiments, appeared in

(1) Many of these motives were far from being *purely hedonic*.

Hedonism in our Researches.

various forms, as attractions, impressions of value, feelings, and judgments of value. They were often accompanied by interesting phenomena. « *T held me* »; « *K drew me to it* »; « *I felt an instantaneous recoil from C* »; « *I took Z in a spirit of* mockery *of the other alternative* » Hedonism appeared ordinarily;

1. In the general character of the Motivation.
2. In the manner of Choosing.
3. In the way in which the Choice was realised.

If the choice was distinctly hedonic, the motivation often consisted in rapid and eager movements towards this or that alternative; the choice was made with feelings of actual pleasure and certitude; and the choice was realised readily and willingly. « I took and drank Z with haste and pleasure », was very frequently recorded. Again, the beginning of a hedonic choice was usually characteristic. The recognition of bad substances was accompanied by feelings of displeasure, disappointment, and even of discouragement. The recognition of good substances by feelings of pleasure, and often by immediate active tendencies.

It should be remarked that in our experiments the Subjects were instructed, at least *implicitly*, « to take the best and drink it »—« the best » meaning the most agreeable. There was thus a deontological motive to support the hedonic motive for the best. The motives for Z, T, and K, the agreeable substances, would not perhaps, of themselves, have been sufficient to elicit the act of drinking, were they not strengthened by the instruction. The motives then for these substances, were in reality not purely hedonic. They were also, in virtue of the instruction partly deontological.

The case of many choices in ordinary life is more or less the same. The man who studies the *menu* card at lunch, doubtless is

usually seeking what will give him most pleasure (and agree best with his constitution) but he is also under the deontological (1) motive of « *having to eat something* ».

From another point of view the motives in our experiments were less hedonic than might be expected. Subjects did not always understand « *the best* » as « *the most pleasant* ». For S^3 « the best » often meant « the most definite », or « the one I have always chosen » (motive of consistency). For S^2 « the best » meant at times « the most familiar », or « the one which will get me out of this difficulty ».

Examples of Hedonic Choices.

a Hedonic Attractions.

We shall give some examples, first of Hedonic *Attractions* and then of Hedonic *Repulsions*. Afterwards we shall analyse some points of special interest.

1. S^2. Choic T—B. Reaction-Time, 907 sigma.

The experiment went very rapidly. I saw B first and immediately after T. It went so quickly, that I seemed to pay attention to the two words at the same time. I made no comparison or judgment of value, *but I was drawn to T without knowing why*. I took T quite naturally. I was drawn on seeing T; I find no explanation of this fact. I had no special feelings and remained quite cool.

2. S^2. Choice T—L. Reaction-Time, 974 sigma.

I saw L first. I was distracted and waited a little before recognising it. On seeing T, I was drawn towards it—*even strongly drawn*.

The manner in which a hedonic attraction may be somewhat mixed up with other motives, is well seen in the following choice.

3. S^2. Choice K—B. Reaction-Time, 702 sigma.

I was drawn immediately by K without any comparative judgment. In that attraction for K there was the memory that K was always good ; that it played an important rôle. I recalled, so to say, all the decisions made for K, *so it becomes, as it were, a habit to choose K*. It was a choice for K but very easy, because I have the habit of making it. For K there is a motive of an agreeable quality, which is always at the basis of the preference which I have for it.

(1) I use «deontological» in a wide sense. In the case in question, the man feels himself bound in duty to his habits and conscience, « to eat something. » He knows he ought not rashly to injure his health, or work.

We see from the examples just given that S^2 was attracted strongly, both by K and by T. K. however was his greatest favourite. We shall see now, in the choice T—K (where T and K were opposed), the manifestation of a peculiar phenomenon, called by S^2 « *moquerie* ». It accompanied the victory of K over T, and resembled the state of feeling, which is called *gloating* over the defeat of an enemy. It marked too, that the pleasure accompanying the victory of K over T was all the greater, because T was itself very good. The introspection was as follows :

4. Still something strange. I first saw K very rapidly and then T. I took or seized K while I was still looking at T. *This taking of K was accompanied by a feeling of pleasure, mixed with a feeling of « moquerie » for T.* It seemed to me that the opposition here was becoming more conscious, because T is also good. In this fashion, the agreeable quality of K gives me more pleasure, because I can prefer it to T. Other preferences for K pass more simply.

5. This phenomenon of « *moquerie* » took a somewhat different form, in the next T—K choice, of S^2. Something quite unusual occurred. Having chosen K, and then, having recognised that T was also good, as if to emphasise his choice of K, and as if to mock at T, *he drank K twice* (1). The introspection was as follows :

Not very regular ; I saw K first. I preferred it already, before seeing T. There is a real automatic habit of taking K. While I was taking K, it came into consciousness that T was also good. *Spontaneously I drank some of K twice.*

We shall now consider a few examples of Hedonic Repulsions (2).

(1) Such phenomena have an especial interest and importance when they occur in experiments, because their conditions can then be, as here, accurately determined. In ordinary life the conditions could not be determined with accuracy.

(2) Other examples will be found among the choices in which Hesitations occurred ; See chapter VIII.

b Hedonic Repulsions.

1. To quote from the J—C choices, of S². « I saw C, and jumped at once on J. C *repelled me to the other*, without discussion. I preferred J by negative preference, without making myself any idea of its quality. I took it very swiftly and eagerly » ; « I saw C first which *repelled me at once to J.* I took J eagerly without having well understood it » ; « I saw C, and *from C rebounded at once on J*, at the moment of seeing J I had reacted. C lets free the reaction » ; « I saw C and made two simultaneous movements, to see, and to take J. I was solely decided by C ».

2. Still better examples are found in the Z—C choices of the same Subject. Here, while C was very bad, Z was very good.

« I saw C which repelled me to Z which I preferred immediately » ; « I saw C which drove me back at once to Z. I preferred Z and took it eagerly » ; « I saw C, then Z, I took Z. It is characteristic to fly from C—I saw it well ».

These Hedonic Repulsions from C, afford us an opportunity of calling attention to a point of interest. S² remarked that ; « C is more familiar than L. *Still it drives me back quicker and more spontaneously* ». As a fact, C was chosen seven times in preference to L, and L only twice, in preference to C. C was, then, more familiar than L, and as we see preferable to it, still C was shunned, and L was usually regarded quietly.

The reason of this fact seems to have been that L was somewhat *mysterious and enigmatic.* Though known to be very bad, it was never fully known. It had according to both S² and S³, an *enigmatic* character. It defied analysis. S² explained the point, to which we have called attention, thus : « L does not provoke so strong a contrast as C provokes, because L is more vague » (1).

The phenomena accompanying the Realisation of

(1) S² speaks, on one of these occasions, of « a laugh of discouragement » which he was quite unable to analyse or explain ; it would remind one of Keat's sonnet; « Why did I laugh to-night, » etc.

Hedonism in the *Realisation* of Choices.

the choice, no less than those seen in the motivation, pointed to the presence of hedonic influences. An agreeable substance was taken swiftly and with pleasure. A disagreeable substance was drunk in a slow and hesitating manner. « I took the glass slowly and delayed in drinking it ». « I did not drink L till long after I had it in hand. I did'nt wish to drink it ». Such unwilling and reluctant methods of realising the choice arrived at, were detected by the time-measurements of the Vernier Chronoscope. A very noticeable difference occurred in such cases. The Subjects, too, were conscious of the relation between the choice itself and the manner of realising it. Thus S^2, in N° 24, having chosen B in preference to L, said; « I took B slowly and hesitatingly. It almost escaped my grasp. I believe that this reluctant manner of taking the glass is in relation with the values indicated in the words. » Sometimes feelings of disgust or displeasure resulted in sudden changes of choice; sometimes the Subject felt that he could not bring himself to drink the glass; it appeared so very bad.

The Evolution of Hedonism.

As an example of the Evolution of Hedonism, in a series of choices, we take the Z—K choices of S^1. There were six in all. *Z was chosen in each case.* The reaction times showed a uniformly descending curve, save for a slight rise in the case of the first experiment after the vacation (1). The Reaction-Times, in chronological order were : 860, 687, 682, 457, 482, 432 sigma respectively. The introspections are given in full in the appendix. The following points are noticeable in the Evolution.

(1) The dates of these six choices were, 3rd, 7th, 12th, 19th Dec. 1910, and the 3rd, and 9th February 1911. The experiment of Feb. 3rd, was the first after the vacation.

1. The Subject was conscious of the degree of hedonic value, and had impressions of value. He also made a comparison, « Z is better ». The *motivation was wholly hedonic.*

2. The Subject was not conscious of the degree of goodness, but simply had consciousness, « It's this one ». The motivation was hedonic, and slightly deontological.

3. The motivation was still more deontological. There was an implicit consciousness of duty.

4. Automatism appeared to be developed. « Saw Z. Then, at the same moment, had a feeling of pleasure, and a consciousness, 'it's this' ». Motivation was less hedonic and more deontological.

5. Motivation was almost entirely deontological.

6. The phenomenon, « *It's this without doubt* » marked here, a further stage in the Evolution. This sentiment of certitude accompanied choices where something distinctly good appeared. It is the clear duty of the Subject to take it, « the best. » Hence the motivation here is entirely deontological.

In this Evolution we see the motivation, which is at first entirely hedonic, becomes less and less so. Under the influence of the instruction, *it becomes almost entirely deontological.* This Evolution was supported by the analysis of preferences, given in our chapter on Automatism, where it was seen that, for the three Subjects, the general tendency is towards a total disappearance of Hedonic preferences.

The Effects of Hedonism on Motivation.

Among the effects of Hedonism on Motivation should be noticed the fact, that the most rapid choices are, other circumstances being the same, those in which agreeable substances are chosen. The slowest are those in which disagreeable substances are chosen. Again, rapidity in choosing facilitates the development of Automatism. Of course, when Automatism has reached a high degree of development, there are no longer any traces of Hedonism. Still it is in choices, that were originally hedonic, that Automatism is found

in its most developed form. The Motivation in such cases comes to be quite abstract and algebraical. To quote S^3 ; « When we discuss everything in an abstract way the question of pleasure-pain does not occur ». At times nevertheless, for some cause or other, there is a regression for a moment to the hedonic stage. As a consequence, images and feelings are once more experienced. To quote again S^3; « Yesterday, choices were abstract and algebraical. To day I must appeal to sensations and images which are constantly at the focus of conscience ».

At times, Hedonism gives rise to a conflict of motives, and in consequence, inhibits the regular Evolution of Motivation. The following quotation from S^2, gives an example of such a conflict, between a hedonic attraction and a duty imposed by the instruction. « I experienced a kind of struggle between the fact of being drawn by Z, and the habit of seeing the two words and of knowing both ». Conflicts of a similar kind were seen in the act of Realising the choice.

The presence of opposing hedonic attractions lead at times, to « inexplicable » choices. The Subject chooses without being aware of the cause of his choice, which was, in all probability, a sub-conscious hedonic tendency. The following example, a T—K choice of S^2, will show this to be the case.

I first understood K. Then I went to the left, to T, without expressing any judgment of value. Owing to the instruction I pass from one to the other. *I understood T as good.* I came back to K, and said, and thought, that it was better than T. In the beginning I must have judged it also, as better than T. I took T all the same, although I judged K as better. *It is impossible to explain why.* It is just like what happened before. Is it automatism? or confusion? or a hidden choice? The taking of the glass is done so unconsciously, that I am very astonished after-

wards. It was late when I saw my error and I was astonished. Yet I felt that this change could be explained. I had a favourable sentiment for T.

Other minor effects of Hedonism on Motivation may here be briefly noticed.

1. Words that represent something very pleasant are often « fixed », « stared at » (physically and mentally), for a considerable time. *They hold or attract the attention of the Subjects.*

2. When both alternatives are agreeable, there is a distinct feeling of ease and pleasure. « I was content that both were good. One is at one's ease in such a choice ».

3. When both alternatives are good, and one (having been decided on) is being taken, there appears sometimes *a kind of backward glance* at the one that is left. It is not a glance of regret exactly,—it is hard to analyse. « During my taking of T I looked again at K. I am still asking myself why I did so? »

4. The sudden force of a new hedonic attraction suffices at times to make us change our choices quite automatically. Our hand seems to turn from that to which it is tending, and to take something else. To quote from S^2, in a Z—K choice; (both Z and K were regarded by him as very good).

I saw Z at the left and understood it immediately as good, and without delay, I wished to take it. In the meantime I was making a movement well directed towards Z. I had reacted, but at that moment I saw K. *My hand turned*, as I saw and understood that K was better, and I took K. The direction of my hand formed a curve. At what stage of the movement I was when I saw and understood K, I don't know. I was quite near Z. My hand, at the last instant, took K. I was content in taking K; it was much better than Z.

In this choice we see that the Subject S^2, yielded to a sudden attraction coming at the very moment, at which he was choosing. Ten days after, when the same choice reappeared, the case was reversed, for the same choice, and the same Subject. On seeing K he tended immediately towards it. Then he saw Z, and judged it to be also good. But instead of changing his movement and swerving towards Z, he sneers contemptuously at Z and continues his movement to take K. « Z seemed to protest against my taking K so quickly. But a contemptuous « soit » justified me in taking K. »

Many little shades and touches, which came to light in our choice experiments, served to render intelligible the more complex hedonic attitudes of people in ordinary life.

CHAPTER X.

THE RELATIVITY OF VALUES.

Relativity in Choice Processes.

We are aware, in ordinary life, of various fluctuations of value. What is precious in our eyes to-day, may be of little worth to-morrow. The shade of colour, and the perfume of the rose that we find charming at one moment, hardly please us at another. On such occasions we know that something has changed—that there has been some inconstancy. It may be that we ourselves have changed, and perhaps, we confess to a certain consciousness of inconsistency. Or, it may be that the tint or the scent of the rose has somehow lost its freshness, or, thirdly, it may be that some external circumstance has caused the fluctuation of value.

There seem, however, to be other causes of fluctuations, of quite another kind; causes founded in our psychical nature, and intimately connected with our conative faculty. Some of these causes we have striven to analyse in the course of our Researches.

Our Subjects were frequently struck by sudden, unaccountable variations in the values of the different substances between which they chose. At one moment T, would appear most desireable, and at another time as of little worth, or as quite indifferent. What was the reason of such fluctuations in value? It was not any change in the Subjects, as owing to their long pre-

paration, their attitude towards the various substances was static or almost so. Neither was it owing to any change in the substances Z, T, etc., for they were maintained at the same intensity, freshness and quality. Nor, thirdly, was it owing to any *external* circumstances. The external conditions were always precisely the same.

It seemed to us that the changes in values were mainly to be attributed to the fact, that whereas the substances, when considered on their own merits, had « absolute », or « independent » values, once they entered into a choice, and became *alternatives* they were considered on their comparative merits and their values became relative (1).

The Meaning of Relativity.

That the values of alternatives in a choice should be relative, follows from the very nature of choosing. In a choice, the alternatives become part of a system. They measure each other mutually, and stand in contrast to one another. They are subject to conditions calculated to lessen or increase the *absolute* values that they hitherto possessed. They now form part of a whole ; they are elements in a synthesis. They are no longer quite what they were before. A whole host of new relations has sprung up. *Absolute* merits are forgotten, only *relative* or *comparative* merits are considered.

The new values may be higher, or lower than the old. If the opposed alternatives are almost equally good, if the competition between them is a close one, and well contested, if so to speak, there is a close finish

(1) In the Recognition experiments, which preceded the choice experiments, the substances were judged on their own merits, as good, or bad, or indifferent. Such values were « *absolute* ». Later on, in the Choice experiments, substances were judged as *better than*, *or worse than* other substances. Here the values were *relative*, and comparative.

to the race, then the value of the winning alternative mounts very high. The fact of being preferred in a choice, causes an increase of value in the chosen alternative.

La valorisation comparative des deux alternatives opposées augmente la valeur de l'alternative la plus favorisée (1).

Then, again, while alternatives are opposed face to face, and deliberation continues, and while the motivation now rises and now descends with a certain rhythmic motion, the values too, rise and descend. In such protracted, deliberations, now one, now another alternative is under the lime-light, and grows fair and fresh, or foul and repulsive, according to the colours which play on it.

The motives which yesterday seemed full of urgency and blood and life, to-day feel strangely weak and pale and dead. But as little to-day as to-morrow is the question finally resolved. Something tells us that all this is provisional, that the weakened reasons will wax strong again, and the stronger weaker. (2)

The alternatives in a choice-process fall under still another influence, more deep and subtle, and less easy to determine. They are relative to one another, not merely because they are simultaneously present to consciousness, nor merely because they are in a certain logical relation, (being both in the same category), but because *they are constituent elements in a definite conative process.* If we may take an example from a game of chess, they are united by a conative synthesis, just as each individual, deliberate move in the game of chess, is in close relation to every other move, and to the whole process.

(1) *Le choix volontaire*, p. 298.
(2) James, *Principles of Psychology*, vol. II, p. 529.

There are relations, writes Mr Stout, (1) arising out of the unity of a single act of consciousness as it exists at any moment, and there are also relations arising out of the transition from one state to another. These relations involve immediate contiguity in time ; either in the way of simultaneous existence or continuous succession. But there is another kind of psychical connexion independent of direct proximity in time, and arising out of a more special and intimate continuity than that which is characteristic of the flow of consciousness in general.

We are not here, however, concerned with the general Relativity of the parts in a conative process but, to put the matter simply, with the strengthening or weakening of the value of one alternative, resulting from the influence of the opposing alternative. To take a concrete example, we propose to examine why J, which was regarded as something bad, and even repulsive, when proposed as an alternative to Z, was regarded as something good when proposed as an alternative to C.

Doubtless the general principle of Psychical Relativity (2) held good in the choice processes of our experiments, as it holds good for every mental act, nevertheless, we are not concerned with it specially.

To summarise then it would seem that the alternatives in a Choice-Process are trebly relative.

I. *In as much as they are present in, and are actual parts of a system or synthesis* (3).

II. *In as much as they modify each other directly, owing to contrasts.*

III. *In as much as they are subject to the effects of the forward movement of the conative process of choosing.*

(1) *Manual of Psychology*, p. 80.

(2) « Mental development depends on modes of consciousness being determined by their psychological relations and subject to modification accordingly. » (Stout, *Manual of Psychology*, p. 78.)

(3) See Introduction. M. Paulhan says of the Will that it is essentially a synthesis.

Relativity in our Researches.

In our researches the choices were made between various combinations of definitely known hedonic values. The choices were *self-contained*, in this sense, that no external circumstances intervened to make one substance more desireable to-day, and another to-morrow. All the circumstances as to time, place, etc., remained the same. The substances were maintained at the same degree of strength, and the Subjects habituated by the long preparation, did not find their tastes (for the different substances) to vary appreciably.

Our choices were then uninfluenced by external conditions. Z, for instance, was not like a flask of water carried to the middle of a desert, of great value to-day, and to-morrow of no value at all. Z, T and all the eight substances, retained always the same *absolute* values.

When, however, the various combinations were taken apart, and a choice was to be effected between them, influences of Relativity were at once apparent. In one choice, for instance, B would have a positive value, in another a negative value. Such changes of value, due to the mutual influence of the alternatives, we shall now consider. We shall see that, *normally*, the winning substance was taken for its *relative* value, not for its absolute value.

We propose, then, to give examples, indicating from different points of view the effects of Relativity. Next, we shall examine the question as to whether or no a choice may be made in virtue of the *absolute* value of an alternative. Next, having pointed out what we regard as general laws of Relativity in choices, we shall dwell on some of its consequences, as revealed by our experiments.

The effects of Relativity were seen both in the moti-

Examples of Relativity.

vation and in the realisation of the choice. We shall first consider a few examples of Relativity in the motivation.

1. When J appeared beside C it was judged as something good. It had a *positive* value. When J appeared beside Z it was judged as something bad. It had a *negative* value. When, finally, it appeared beside B, it was judged as *indifferent*, as having nothing for or against it. It was, for S_2, of equal value with B—but that value was neither positive or negative—it was neutral (1).

2. The substance T, though sweet and pleasant for S^1 and S^2 was, for some reason or other, rejected constantly by S^3. It had acquired for S^3 a false negative value. In the third series however, when the instruction, « choose the worst and drink it » was given, the values of the substances had to be revised, and S^3 suddenly found that he had been unjust to T. The choice T—B was presented to him. Logically he should now choose T as *the worst*, for it was the one he had always rejected. His introspection was as follows.

> I recognised the substances in the order T—B. I felt an instinctive tendency to choose B as the worst. This was followed by the consciousness that *T was not so bad after all.* I had often thought T bad. Here on account of the contrast it did not seem so bad.

This introspection shows the Relativity of the value, that had been attributed, and that was now attributed to T. Shortly afterwards S^3 in another introspection admits a feeling « of having been unjust towards T ».

The effects of Relativity were clearly seen in the Realisation of the choices. The manner of realising

(1) Vide p. 102.

the choice seemed to be in relation with the nature of the choice made. To quote S^2 :

I took B slowly and gingerly. It just escaped my grasp. I believe that this indifferent manner of taking the glass is in relation with the value indicated in the words (1).

This quotation shows the general relation between the choice and its Realisation. There was, however, another relation of more interest for us at this moment, that between the valuation of a substance in the choice, and the valuation of it at the moment of drinking. It often happened, for instance, that when the substance C was presented in a choice, the other was at once taken, even though in itself bad. Though taken quickly however, it was often drunk slowly. *In the choice it was taken for its relative value, in drinking its absolute value was alone thought of.*

The subjects were conscious of the contrast between the quick taking of the substance and the slow drinking of it. Thus S^2, in a V—C choice, said. « On seeing C I jumped back on V and took it very quickly » ; but when he had it in his hand he saw its true worth, « and felt a repugnance to drinking it ». « When we must drink » he said, « it becomes more serious and we reflect again what it means. » Again, S^2, in a J—C choice, said ; « Saw C, and took immediately the other without recognising it ; but then drank it slowly. The fashion of taking and drinking seem in opposition. »

Again we find such introspections as the following : « T did not merit to be chosen so quickly. » « I took V rapidly and drank it, as though I had found something excellent. »

I have said that the choice was made in view of *relative* value, but the glass was drunk with consciousness of its *absolute* value. « C gives me a preference for what is beside it » said S^2, « but never would such a negative preference for a glass make me drink

(1) N. B. Such introspections as : « I chose K as though its greatest concurrant was beside it. » « Z does not beat the others so easily as K. »

it as though it were in itself good, if it were not really good ». S^2 was of opinion that no effect of Relativity could be so great, as to make him forget the absolute value of the substance, in the act of drinking it.

Subjects grew so much accustomed to the mutual play of values, strengthening or weakening each other, that when a *good* substance was seen first they expected that the second would be *bad*, and were surprised if it also proved good.

I saw J. I wished to take it. I had it in my hand, but then I took T, believing that there was something opposed to Z beside it; (the duty here was to take *the worst*). That feeling comes to me by habit. » « When I saw Z, I was already in movement to take K. Then I judged, « but Z is also good ». Z seemed to protest against the taking of K. A contemptuous ' *soit* ', suppressed Z's reclamations. The judgment was made, « K is better all the same » (1).

An interesting aspect of the effects of Relativity in realising choices came to light in the third Series. S^2 had been frequently conscious of the contrast between taking a glass quickly and drinking it slowly. So much so, that he came to find a certain deception in the experiment. J, for instance, would be chosen eagerly as *the best*, and yet it would prove very *unpleasant*. In the third Series however, where the instruction was « *to take the worst* », there was no such deception. If a bad thing had to be chosen and drunk, it was at least what had been bargained for ! It seemed, for that reason, easier to drink. We give in full the introspection of S^2, in a Z—L choice.

I saw L first, then Z. I returned to L, took it and drank it. I had no feeling of repugnance, which surprises me more or less. (L was very bad). I drank it easily (in a continuous movement)

(1) From the introspections of S^2.

owing to the influence of the task. In these experiments (of the third series) all is straight-forward. In the other series the chosen alternative ought to have been good and often was not. Here all is logical. You are told to take *the worst* and it proves to be *bad*.

Absolute and Relative Values.

Normally in the choices the values were distinctly relative. Sometimes they were openly comparative, sometimes implicitly so. Comparative judgments however grew rarer as Motivation evolved, and finally they almost disappeared. Such Motivations, as the following, became common. « K was taken without knowing what was beside it » ; « Z was taken *for itself*, without any relation to what was beside it. »

The question now arose ; were there cases in which the choice was made in virtue of the *absolute* value of an alternative ? Can an alternative be chosen without its value being in any way influenced by its companion alternative ?

We do not pretend that the mere absence from consciousness of all trace of a comparison, is of itself sufficient to show that the value of the chosen alternative was absolute and not relative. Still we believe, basing our opinion on the data of the experiments, that at times alternatives were, *de facto*, chosen simply on their *absolute value* and that the questions posed above may be answered in the affirmative. Let us quote from some introspections.

« B did not intervene at all in the choice. It counted for nothing in the choice. Still it was seen and understood ». « I understood L as bad, from the beginning. I went to Z, which I decided to take because it was good. There was no comparison. The two facts were quite apart. L = bad. Z = good. » This choosing for the absolute value, seemed to occur if the two substances were too dissimilar to be compared. « No weighing or comparison. The two tastes were too dissimilar : I chose K for itself. »

Again, at times, there seemed to be no consciousness of values, at least of anything like relative values. « I had no consciousness of values. The two words, then immediately the judgment, ' It's the other ' ». There were too, frequent cases of choice after the recognition of the first alternative, before the second alternative was even known. Such cases point however to such implicit reasoning as ; « Z is the *best of all*, therefore take it » ; or « C is the *worst of all*, therefore reject it. » They cannot be regarded as evidence for the view we are defending.

It will be remembered that in the Recognition Experiments which preceded the Choice Experiments judgments of absolute value, « Z is very good », « C is very bad » were quite frequent. Such judgments reappeared from time to time in the Choice Experiments, and sometimes they were the only judgments of value to be found in the introspections.

It may be, then, that choices are made at times in virtue of the absolute value of an alternative, and not in view of its relative value. Such cases, however, must be considered as exceptional.

It may well be objected that we are not and cannot be directly aware of the relativity of a value, and that, even when Subjects believe that they are choosing in virtue of an absolute value, they are in reality choosing in virtue of a relative value.

This objection finds support in the fact that in the matter, say of colour or sound contrast, we are totally unaware that we are under the influence of a contrast, and that what we believe to be a definite note, is really only what it is in virtue of some contrast.

In answer to such an objection it may be pointed out, that it is not valid to argue from the analogy of external senses, to the mind. It is true that the senses are directly unaware of the effects of contrast. It does not follow that the mind is unaware in cases of value

contrast. Our Subjects, at times, were conscious of values sliding up or down the scale, under the influence of comparison. They were conscious of the value of a substance being greater in one choice than it had been in another. They confessed to feelings of inconsistency on such cases, or to feelings of having been deceived with regard to the value of such and such an alternative. On some occasions they affirmed emphatically, that they were under no such influence as that of Relativity. « I took Z *for its absolute value*. Its value was not increased by the presence of V ». Subjects seemed indeed to be aware if they were under the influence of Relativity. « I chose K », said S², « as though its greatest concurrent was beside it. This would not have happened had I seen B better ». Again, « C gives me a preference for what is beside it ». « I took V, knowing that C was the cause of the choice ». In fine it seems to us, basing our opinion on the results of our experiments, 1. that choices are made at times, in virtue of the *absolute* value of one or other alternative, and 2. that Subjects are sometimes aware of the fact that they are choosing for *absolute* values.

The Laws of Relativity.

We propose to summarise under the form of three laws, the general conditions of the rise or fall of values in virtue of Relativity, as exemplified in our researches. It should be remembered that we have no evidence that these conditions hold, good outside the special circumstances of the choices in our experiments.

1. A neutral value becomes positive or negative, according as it is opposed to something very negative or very positive.

2. A positive value rises when opposed to something very negative or to something slightly less positive. It falls, if opposed to something more positive than itself.

3. When two neutral values are opposed they remain neutral; two positives remain positive; two negatives remain negative.

In addition, we were able to determine that, though a neutral value might appear positive, or a positive more positive, *during* the process of the choice, the moment the choice was finished, and even before it was *realised*, it almost invariably had lost its surplusage of value. These laws are of course nothing more than the re-stating, in terms of science, facts of ordinary observation. Nevertheless it is important to point out their significance. It is interesting too, to trace some of their practical consequences.

An obvious conclusion, for instance, to be drawn, is that we are rarely or never in a position to judge the conduct of others. Even if we are able to find out the *motives* of their actions, we are never able to tell the *force* of those motives. The alternative chosen by such a man, may seem petty and sordid in our eyes, but, perhaps for him, that alternative had, owing to Relativity, immense value.

The *Consequences* of Relativity.

We shall now briefly tabulate some of the Consequences of Relativity.

1. The *form* of the motive was often changed. J would now be *positive*, now *negative* according as the value of its alternative varied.

2. The *content* of the motive varied. The sweetness and special flavour of Z, for instance, were called to mind when T or K were opposed to it. Its strength or intensity was called to mind if V was opposed to it. Special circumstances determined the special aspects under which an alternative is seen.

3. Motives were more or less *concrete* in form, according as the value was increased or diminished. For

instance, the fact that the value of J was increased, in consequence of its proximity to C, resulted in a change of the usual form of the motive for J. Such strengthening of value meant a regression in the form—it became less abstract.

4. The Subjects were conscious of the values of the substances changing owing to Relativity. The result was that they were, at times, under the impression that they were acting inconsistently. This feeling was deceptive. S^3, for instance, who was in reality faithful to the original scale of values which he had drawn up, said, experiment N° 125 ; « I was aware that my ideas of T and B had changed considerably since first I saw them. » On another occasion he felt he had changed his preference in a certain choice, and yet he had been perfectly consistent.

5. We have already dwelt on the feeling of evenness or unevenness experienced in choices, according as the substances were similar or dissimilar.

Thus S^3, in a Z—T choice, says ; « I had a feeling of a certain similitude between the qualities of the things compared ; there was a certain equality of intensity » ; again, in a Z—K choice, S^3 says ; « I had an immediate intellectual recognition of an evenness in the choice. They were qualitatively similar. »

Subjects were also immediately conscious of contrasts between the alternatives. S^3 said ; « I recognised the contrast between the bitter and the sweet » ; « the contrast between T and V sprang into my mind before I was aware of individual significance » ; « I felt a great unevenness in the elements of the choice. Things so very different seem to me to be situated *on the two banks of a ravine* » ; « I felt that the choice lay between things very dissimilar. This feeling is connected with a nerve process. I always know when it is there ».

It remains for us, in concluding this chapter, to recall the necessity of taking into consideration the

various Consequences of Relativity, when dealing with questions of Motive-Force, and of Motivation-Evolution. Naturally, little can be determined with regard to Relativity by means of Experiment. The problem belongs to the domain of Metaphysics. Still, it is important, that, as far as possible, examples of the presence of Relativity should be classified and analysed.

CHAPTER XI.

THE PSYCHOLOGY OF CHARACTER.

> Surely it only needs that we should learn to handle men, as we handle the forces of Nature, and we should become masters of our human destiny to a degree which would lift us to the level of gods.
>
> L. P. Jacks, *The Alchemy of Thought*, p. 205.

Character, as manifested in Choice.

In ordinary life, if asked what the character of someone is, we spontaneously recount what he likes and dislikes (1). In doing so we show ourselves to be good psychologists, for as Ruskin insisted, there is no better way of finding out what a man is, than by studying what he likes.

It is still more advantageous to be able to study *how* he likes, that is, *how* he chooses. In the Choice-process, a man reveals himself completely. Choice, implies acting on *motives*, and nothing gives a deeper insight into man's nature, than the knowledge of his motives, for they show us, whether sense of duty, or

(1) This point is well brought out by a storyette from *Punch*. A rough-looking sailor is represented as standing before the Captain and a Petty-Officer. The Captain asks, pointing to the sailor, « What is his character apart from his leave-breaking? » The Petty-Officer replies. « Well, Sir, this man 'e goes ashore when 'e likes, 'e comes off when 'e likes, 'e uses 'orrible language when 'e's spoken to. In fact from 'is general be'aviour 'e might be 'a 'orficer. »

hedonic attraction plays the chief part in his life. Again, to choose is to put oneself in motion, to act; not necessarily to act exteriorly, but to act, at least, within. But action at once betrays the strength or weakness, the resoluteness or indecision of him who acts. Choice too implies motivation, and in motivation, our power of reasoning, (of insight into things), of calm and tranquil thought is shown. In motivation impulsiveness, caprice, inconsistency, and carelessness, or the opposite qualities are inevitably manifested.

Mr Mackenzie writes : « Deliberate choice depends on thought or reason. In order to choose the right, in the sense in which such a choice has any moral significance, we must know the right. If we simply hit on the right course by chance we do not really choose the right. Right willing therefore depends on true insight (1).

In choice then, a man's character stands fully revealed. Likes and dislikes, consistency and inconsistency, firmness and weakness, calmness and impulsiveness are all manifested. In the choice a man's soul, like a city in the glow of sun-rise is « open unto the fields and to the sky ». To study him then, is to study him indeed.

Adopting this standpoint, that the Psychology of Choice or of Motivation is the *Psychology of Character*, we propose to summarise the results of these researches and to apply them to the practical problem of Character-Formation.

The question may be raised at the very outset, as to the possibility of Psychology being able to afford any practical aid in the study of Character. Psychology, though an empirical science, is after all necessarily abstract. It is forced to deal with generalities. A man's

(1) *Manual of Ethics*, p. 89.

Character, on the other hand, is individual and concrete. It is complex, vital, dynamic, self-creating, and in consequence, defies definition. How then is a Science of Man possible ?

We must think of man throughout, writes Mr Jacks (1), as a self-conscious being, as a living will, and ask whether the interests of such a being are amenable to scientific definition and whether the activities of his will in the pursuit of those interests can be brought under formulated laws. Nothing short of this is entitled to rank as the science of man.

For Such reasons there is always a chasm between Character, in the reality, and its definition. There is too, something essentially deficient in attempted definitions, even though they be couched in striking terms.

For Lacordaire, to take one example, character is, « l'énergie sourde et constante de la volonté, je ne sais quoi d'inébranlable dans les desseins, de plus inébranlable encore dans la fidélité à soi-même, à ses convictions, à ses amitiés, à ses vertus, une force intime qui jaillit de la personne et qui inspire à tous cette certitude que nous appelons la sécurité. »

Lacordaire gives us, it is true, an eloquent and finely-worded description, but we are as far as ever from an exact scientific definition. What is to be understood by « l'énergie sourde et constante de la volonté » ? or by « la force intime qui jaillit de la personne » ? The trite definition of Novalis, « Character is a finely fashioned Will », though somewhat more precise, is still of as little practical value as that of Lacordaire.

Experimental Psychology, and Character.

Turning now to Experimental Psychology, we find that within certain limits, great light is thrown on the problem of Character. Much can be determined with precision, as to the intellectual and volitional nature of *the individual.* It is now in our power, owing to

(1) *Alchemy of Thought*, p. 203.

modern methods of research to determine with comparative ease the mental type of the individual. It is possible to find out, how far he is a *visual*, or *auditive*, or *motor* type, or how far he is a mixture of different types.

It is possible too, in a manner perhaps somewhat less precise, to guage the individual's power of memory, attention, and perception. Something too can be done, in the way of determining the characteristics of his volitional functioning; how much, or how violently he hesitates, how slowly or how rapidly his choices become automatic; how far he is under the influence of hedonic tendencies; and finally what percentage of hedonic attractions and repulsions, and sudden changes of mind, occur in his choices, as compared with those of others. An effort, as we have seen, may even be made towards *measuring the force of his motives*, and towards determining the various ways in which he *strengthens his motives*. Indeed the hope may justly be entertained of discovering methods, applicable even outside of the laboratory, of acquiring a very exact insight into the nature and force of individual Wills.

As regards investigating the nature, and strength of various habits much can be achieved. We have shown, in our chapter on Motivation Tracks, that it is possible, when conditions are fully determined, to discover the « *structural* » and « *psychical* » phenomena of certain habits of choice. It is to be hoped that, with the advance of the psychical method, much more may be discovered.

That the intellectual temper of our time encourages the belief in the possibility of the Science of Man, and the hope of its realisation in the future, admits of little doubt. A state of the world when the system of natural laws shall be throughly understood, and

when all human action shall be in accordance with this knowledge, is the far-off divine event to which vast numbers of persons are vaguely looking forward.

This millenium of science has been often described. Physiology and its cognates shall enable us to control our bodies ; we shall eat by science, dress, warm, and house ourselves by science. Psychology will have given us command of our minds ; we shall know how our intellects, our emotions, our wills, act under given conditions, and we shall prepare them for acting accordingly ; education will be throughly scientific ; we shall teach nothing but what the laws of the mind allow the young to assimilate, and to assimilate in the most favourable manner. (1)

The Character of S^2.

Let us now show, by an example, how far we are able from the data of our experiments, to determine the intellectual and volitional nature of our Subjects. We take the case of S^2. Naturally, we must base our conclusions on comparisons with what we know of the other two Subjects. Doing so, we find that S^2 is the most impulsive, and the most « thoughtless » of the three. He changes his choices, and his movements more frequently, has more active tendencies and has more sudden, « inexplicable » choices. He hesitates and oscillates most, is more liable to discouragement, to grow excited, to manifest exteriorly his feelings. He is the most hedonic ; chooses the pleasant tastes with childish eagerness ; he becomes so upset when an unpleasant taste has to be drunk that at times, he cannot overcome his repugnance to drinking it ; *he fails in his duty*. S^2 is the least consistent, the most liable to distraction and inattention, yet withal the most observant and the most impressionable. He noticed phenomena that the others did not remark, and was eminently frank, and spontaneous in his introspections. Though having but few images and associations, he had

(1) L. P. Jacks, *The Alchemy of Thought*, p. 203-204.

a quick sense of the strange or the humourous. In fine he is mercurial, demonstrative, sanguine, frank,—like the « *sanguins* » of Mgr Guibert (1) :

Sa sensibilité est vive, aiguë même, mais sans consistance. Les impressions, chez lui, sans profondeur ; il passe, en un instant, du rire aux larmes, de la joie délirante à une tristesse noire... Leur intelligence se ressent de leur vivacité de nature. Elle est prompte, elle voit vite, elle s'assimile aisément, elle est servie par une mémoire heureuse... comme une pointe aiguë, elle pénètre sans peine dans toutes les questions... Étourdi, irrefléchi... généreux... désintéressé. Ce qui lui manque, c'est la volonté, c'est-à-dire la consistance dans ses résolutions... (2)

Of course such a character-sketch might easily be given by any friend of S^2, who took the trouble to write it. Still we believe, we are able to render it precise and exact by putting it in relation with certain statistics.

1. We have given a table of the favourite choices of S^2, and of the force of his various motives, in our section on Motive-Force.

2. We have given (3) a table showing the gradual disappearance of Hedonic Preferences. From this table it will be seen that S^2 had proportionately more hedonic motives than S^1 or S^3.

3. In our chapter on Automatism, we have given a table of comparative figures, verifying many of the points referred to above (4), and in our chapter on

(1) *Le Caractère*, p. 178-180.

(2) Although a typical « *sanguin* », S^2 was by no means without Will. We have seen, in our chapter on Hesitation, how S^2 had the power of getting rid of Hesitations. S^2 also manifested, in his choices, an excellent trait of Character, namely, that when he saw *clearly* what was best to do, he acted resolutely and at once. His Character was many-sided and interesting, as far as revealed in our Experiments. Naturally our remarks only apply to *the S^2 of the Laboratory*.

(3) P. 127.

(4) P. 147.

Hesitation we have carefully analysed the Hesitations of S^2, and the manner in which he rid himself of certain tendencies to Hesitate.

4. The impulsiveness and inconsistency of S^2 are shown by the following figures (1).

Impulsive choices and movements	S^2 24	S^1 15	S^3 15
Movements or choices changed	S^2 7	S^1 5	S^3 1
Inconsistencies in choices	S^2 8	S^1 4	S^3 5

5. That S^2 is a more hedonic temperament than S^1 or S^3 follows from his more frequent manifestations of hedonic attractions and repulsions; (feelings of pleasure, displeasure, regret, capriciousness, etc.) The following numbers represent approximately the hedonic manifestations in the three Subjects.

S^2 50 S^1 25 S^3 10

6. That S^2 had less imagery than the other Subjects, appears from the following facts.

Reproductions of Taste	S^2 2	S^1 5	S^3 8
Associations	S^2 0	S^1 0	S^3 7
Specifications of Taste; « Sweet », « Acid », « Sugar », etc.	S^2 0	S^1 12	S^3 30

7. S^2 noticed various, tendencies, feelings, muscular sensations, peculiar attitudes of mind, and interesting post-reaction phenomena which were unobserved by S^1 and S^3.

8. Many minor points also throw light on the Character of S^2,—such for instance—

Feelings of Easy Task.	S^2 7	S^1 0	S^3 2
Consciousness of Task.	S^2 9	S^1 5	S^3 5
Strong hedonic attractions	S^2 5	S^1 —	S^3 —

(1) They are based on the 273 experiments of the first part of the second series.

The *Formula* of the Character of S^2.

The possibility of expressing Character by means of a *formula* has been often discussed. We believe that with the data of our experiments it could be done more or less adequately. Nevertheless, since there is no approved method of doing so (1), the first to attempt the task most run the risk of being accounted rash.

Clearly the standpoint should be strictly empirical. The supposition, by no means an arbitrary one, should be made, that *all the essential elements of character are expressed in the choice-process*. All these elements, together with all the phenomena occurring in these choices should then be analysed. Therein, all that can be known of the Will or Character is contained.

Next, a standard character must be determined on (2). This, we should propose to do, by (taking the case of our researches) finding the mean of the added phenomena of S^3 and S^4—*thus forming an ideal type*. To such a proceeding objection might easily be taken from many standpoints. Still the question is a pratical one, and must be solved by some method of this nature.

Applying this method, as far as we can, and with all due reservation, to the case of S^2, that is, comparing him, with respect to certain important elements of character with the standard type of character, we get *the following formula* — (the abbreviations are explained below) (3).

$S^2 =$ Act. 1·5 + Res. 1 + Hed. 3 + Hes. 2 + Incon. 2·5 + Aesth. 1 + Repr. 0·5... .. .

(1) Schopenhauer wrote that the normal man is 2/3 *Will* and 1/3 *Intellect*, while the genius is 2/3 *Intellect* and 1/3 *Will*. This calculation was not, of course, based on any very serious research. Vide. Ribot, *Psychologie des Sentiments*, p. 392.

(2) We have passed over the old classifications of men into phlegmatic, choleric, etc., as of little use for our purpose.

(3) Hed. = Hedonism. Hes. = Hesitation. Incon. = Inconsistency. Repr. = Representations, Images, etc. Aesth. = Aestheticism. Act. = Active Tendencies. Res. = Resistance to Tendencies.

We have, here, put intellectual and conative phenomena side by side. We have been at a loss to determine what the chief element of character is. Our proceeding is *simply and purely empirical.* We state that, *de facto*, under the conditions of our experiments, the formula given above approximately represents the intellectual and volitional nature of S^2 — as compared with the standard described above. We are aware that the formula is incomplete, and open to criticism. We merely propose it, as a tentative effort.

Mr Jacks, discussing the possibility of such a formula, reminds us, that no matter how thoroughly and profoundly we may know the abstract law of a man's nature, it is vain to dream of expressing it in a formula. Did we do so, and did the individual come to know it, he could falsify it, and nullify it at will. Such a one would say :

I shall cause no trouble to science so long as you are content with the abstract statement that my nature or my character is law-abiding. But make your statement concrete, give me the precise formula of my character, tell me the specific law of my action, and I will at once put science to confusion by adopting another formula, and by acting under another law (1).

Clearly, the only thing to be done with a difficult character of this nature, would be to hide from him his formula, or to change somewhere a *plus* into a *minus*, and show it to him thus. It is nevertheless of immense importance from the point of view of education that Psychology should tend in this practical direction, and that a method should be found for determining the systems of values of individuals. Indeed no important advance can be made in moral education until such a method is discovered.

L'analyse du système individuel des valeurs, l'exprimant sous forme numérique aurait évidemment une importance de tout pre-

(1) *The Alchemy of Thought*, p. 208.

mier ordre dans la pédagogie, dans l'éthique et dans la science des religions. L'éducation morale ou religieuse consistant, en dernière analyse, en la formation du système des valeurs de l'individu, en la modification d'un système, la connaissance de ce système tel qu'il est donné, serait un des plus précieux auxiliaires de ces sciences (1).

Character-Formation.

It remains for us, to indicate the chief conclusions, of a practical nature, which may be drawn from the present study of Motivation and to show how they apply to Character-Formation.

The central fact of the researches we have been describing, is that when a choice has to be made between two alternatives, the choice is quick and easy in proportion as the values of the alternatives are clearly and definitely known. So long as the Subjects in our experiments were quite sure of the positions of the alternatives on their scale of values, the choices presented no difficulties. They were made more and more automatically. There was no hesitation, and no irregularity.

From the moment, however, that a Subject grew doubtful about the position of a substance on the scale of values, all regularity and certitude were at an end. The motivation was no longer swift and easy. Volitional force, instead of being economised was wasted. Hesitations occurred, and the functioning of the Will grew more and more arduous and painful. In a word the motivation deteriorated, and instead of following its normal evolution towards automatism, and consistency, it devolved, and inconsistencies occurred

What held true in general, for the choices and the motivation of our researches, holds true, though possibly in a less degree, for the choices made in ordinary life. We speak in particular of the more important

(1) Michotte et Prüm, *Le choix volontaire*, p. 290.

choices, where questions of honour, and of morality arise, of choices, that is, in which character is involved. In these crises, in which good and evil, the noble and the base, stand opposed, in which no compromise can be made, and no delay is possible, all depends on something in the man which is called Character. A choice is to be made, must be made, and in making it, the last word is spoken by « Character ».

What then is to be understood by Character? And how is it to be formed?

Let us admit, as a working definition that Character is « a well-fashioned Will », that is to say, in the psychological terms which we have been using throughout this book, Character is the power of quick, sure, and serious motivation in choice-processes. In a word, a person who consistently, without hesitation, or capricious movements, takes *the best* of the two alternatives, with more and more ease, and that for intrinsic motives, is one who has « a well-fashioned Will », a good Character.

We seem then to reduce Character to the power of good motivation, and we do so deliberately. The act of choosing is the first and the last act of the *ego*—it is the assertion of what the *ego* is—it is the positing of his character.

All our attention must then be turned on the problem of choosing well, on the problem of how to acquire the power of good motivation.

The Importance of a *Clearly-known, definite Scale of Values.*

We now find ourselves at the point from which we started. « *The central fact of the researches we have been describing is that, when a choice has to be made between two alternatives, the choice is quick and easy in proportion as the values of the alternatives are clearly and definitely known* ».

In this last phrase lies, as it seems to us the practical solution of the whole problem, of how to acquire a power of good motivation—and ultimately of how to choose well. We must clearly and definitely determine the values of alternatives, and that of course, as far as possible, long before the choice begins. We must have our fixed scale of values. We must have a scale of values for every sphere in which we live, and for our life as a whole. There must be a top-value, a *ne plus ultra*, with which nothing whatever is comparable. That top-value must act as a charm, it must electrify us, hypnotise us. It must be a top-value in all reality.

Then again there must be a lowest, a bottom-value; something which must never be chosen. Something which must be rejected on every occasion as absolutely loathsome.

There will be also middle-values, and perhaps neutral values. Into such details it is not necessary to enter. The main fact, the central fact, must always be kept in mind, that *the scale must be clearly and definitely known*, in consequence it must be fixed and rigidly partitioned off, each grade from that above and from that below.

To such a solution of problem of how to choose well, the obvious objection is, that we frequently know and see clearly that one thing is more valuable than another, yet we take what is worst : *video meliora proboque, deteriora sequor*. Something then further than the mere clear and definite knowledge of a scale of values is required ? To answer this objection, we may point out, that what we are seeking to give is *the practical solution of the problem*. We do not deny that it may be possible, and even that it happens at

times, that one course is *clearly and definitely* know to be better than another, and yet that the other is followed. Still we believe that such a case is exceptional. The usual antecedent of wrong conduct is a confused, uncertain state of mind. On the other hand, just as was clearly evident in our 1100 experiments, when the values were clearly known, automatically the choice was realised. It followed of itself (1). Doubtless in our experiments there was the additional instruction and resolution to effect the choice, and to take what was known to be best. But such instructions and resolutions hold, at least normally, in ordinary life. What is wanted in ordinary life is a fixed well-known scale of values, such as those according to which men, who have won universal admiration for their morality have lived.

It may seem that this view is extreme. That, while it is true that it is most important to have a scale of values such as I described, it is necessary also that subjective efforts should constantly be made. But in what do such subjective efforts consist, if not in directing the attention constantly in some direction? Is not their efficacy to be fully utilised in keeping clearly and constantly before the mind the Scale of Values? Prof. James seems to attribute such a rôle to volition when he says (2), « we reach the heart of our enquiry into Volition when we ask by what process it is, that the thought of any given object comes to prevail stably in the mind. »

There is certainly a tendency among Psychologists

(1) As an example, the Z—C choice of S3 ; « Immediate recognition in the order Z—C. There was no mental pleasure or displeasure, but a purely algebraical working of the mind. Z was the upper, C the lower limit of my scale. By first principles, Z must be chosen. »

(2) *Principles of Pscychology*, vol. II. p. 561.

to interpret litterally such expressions as *Will-Force*, and to believe that some such energy is stored-up somewhere in the mind. Külpe for instance tells us (1) that, « the reserve of energy which gives efficacy to the Will lies below the conscious limen ».

That such a reserve exists somewhere in readiness for voluntary action we should not deny. That such a reserve could be more practically employed, from the point of view of moral conduct, than in keeping present to the mind the ideals and axioms that represent our highest values, we should certainly not admit. The dictum of Socrates, that virtue and knowledge are one, bears out the truth of our contention. He who knows the right acts aright. Not that we are to understand this dictum narrowly; but, taking it in a concrete and practical sense, it is true.

With regard to Character-Formation, besides the important principle we have formulated, of having a scale of clearly-known and definitely fixed values, some other points suggested themselves naturally, during the course of our experiments.

1. With regard to Hesitation, which is, *par excellence* the malady of the Will, in as much as it destroys serious motivation, and leads to irregularities and inconsistencies, the great means of avoiding it is to acquire the habit of serious, decisive, choosing, and to avoid repining over past choices. Evidently the possession of a clearly-known, definite scale of values renders Hesitation less likely.

2. With regard to Motivation, we have seen how habits of choice persist, and how Motivation-Tracks are formed. Not only does the general structure of the

(1) *Outlines of Psychology*, p. 215.

choice-process persist, but the same motives, images, feelings, delays or hesitations, tend to reappear.

Once more the advisibility of choosing for serious motives, and of choosing in a resolute way, appears. If our motive in the past was a sense of duty, that motive will return again, and with greater force. The « Universe of Duty » will come to prevail and, in modern language « the man of good character is he in whom the Universe of Duty habitually predominates ». It is hardly necessary to dwell on the significance of habit in connection with Character-Formation. Aristotle and all the great moralists have done so. They have shown virtue to be a habit, « habitus operativus bonus ». Virtue, indeed, is a habit of choice. « Ἔστιν ἄρα ἡ ἀρετὴ ἕξις προαιρετική » (1).

Such a habit of choice must persist in the concrete. It must be capable of translation into psychological terms. This is what we have striven to do in our chapter on Motivation Tracks.

3. With regard to Motive-Strengthening we have seen the efficacy of some ready principle. Not only is it useful in case of Hesitation, in turning the scale and saving us from indecision, but it is useful in choices of all kinds. It adds strength to the right motive, and the choice is rendered easy and automatic. From this point of view too, the question of Relativity is important. Motives are strengthened by contrast. The good is easier to perform, when placed well in antithesis to evil. The more perfect and honourable of two courses of action, may be rendered easy, by putting it in a like contrast with the alternative, the less honourable course. Indeed the theory of Motive Strengthening is one of great importance in moral education.

(1) *Ethics*, II. VI. 15.

We content ourselves with enumerating these three or four points. They may be of use to those interested in the problem of Character-Formation. Other points will suggest themselves in the course of reading our chapters on Hedonism and Motive-Force, and especially in studying the various examples of introspections, which we have furnished in great number throughout this volume.

APPENDIX.

A. THE J—V CHOICES OF S^2
B. THE J—B CHOICES OF S^2
C. THE Z—K CHOICES OF S^1

A. THE J—V CHOICES OF S^2.

NOVEMBER 30th. R. T. 1365. V. CHOSEN.

1. I saw V first. I understood it, (superficially). I went at once to J ; on seeing it I hesitated a moment. J did not satisfy me. I had a special feeling of non-satisfaction, but not of disgust. I went back to V and took it quite coolly, without pleasure, and without explicit comparison with J. I took it deliberately, being more content to take it. I had no feelings.

DEC. 10th. R. T. 899. J. CHOSEN.

2 I saw V first. I made no appreciation of value. I then saw J. I took J in an irresponsible way ; when I had the glass J in my hand I regretted having taken it. At that moment V became conscious to me as something better, which I had lost. This regret to have J, came rather from the fact that V came back to conscience and *appeared* to me better. In reality J is unknown to me from the point of view of pleasantness or disagreeableness I don't think it came ' positively' into that regret... V was not conscious as being pleasant, but as being more known, more intimate !

DEC. 13th. R. T. 597. V. CHOSEN.

3. Something novel this time. I saw V first. I understood it but superficially. I then saw and examined J. I wished to take J. I was so near reacting that I saw a spark at the contact. I 'put back'

the button The thought came to me, « The other is not so bad ». I took V rapidly, and drank it. I reacted just as if I had found something excellent. V came to me as well-known, not as agreeable.

JAN. 18th. R. T. 2215. J. CHOSEN.

4. A hesitation so strong that I could not get out of it. I saw the two words at least four times successively. There was no discussion; one is in too great a hurry! If in the beginning one were resolved to weigh the values it would go quicker. Now we fuss about, to see which of the two is going to attract us. It was « un véritable tatonnement ». I chose J. At the moment of the choice I had the idea that J was better. Hardly had I taken the glass into my hand when I was convinced that I was deceived. I repented of having taken it—of having been deceived. I don't know why I should have preferred to have taken the other. I had to drink J with very great repugnance—a repugnance which was suggested by that regret to have taken it.

JAN. 24th. R. T. 2175. V. CHOSEN.

5. A hesitation such as I never had, as far as I remember. In the L -C choice I found a difference with respect to familiarity. Here I found no difference whatever; there was absolutely no reason which pleaded for one or the other. Then I swore, with a gesture of discontent. I recalled the duty I was under, of choosing. I took V—and drank it slowly. During my hesitation I did not pass from one to the other, but hung anxiously between the two. I had a feeling of discontent.

JAN. 30th. R. T. 1404. V. CHOSEN.

6. A strange business! I saw the two words about the same time—then, successively, saw V and J. I feel, to-day, more under the duty of reacting rapidly. I felt three or four movements in my arm to take J, but my finger rested still on the button. I took V without any conscious reason for taking it. I drank it with caution.

FEB. 1st. R. T. 606. J. CHOSEN.

7. I saw first V—then J. I took J. It was not a choice. I hardly had decided to take it when the movement went. I regretted to have chosen « tellement à la légère. » I did'nt regret to have taken J—but to have reacted so, i. e., to have chosen automatically, without any motive.

FEB. 8th. R. T. 510. V. CHOSEN.

8. Saw J. then V. Had feeling of tendency to take one or the other. I was not decided for one or the other. I began then to fiddle about (un tatonnement), and having passed three times from J to V, got out of this oscillation, in despair. I took V, without any conscious reason for taking it. I could just as well have taken J !!

B. THE J—B CHOICES OF S².

NOV. 29th. R. T. 725. J. CHOSEN.

1. I first saw B. There was no judgment of value. I went immediately to J and took it, though not conscious that J was better than B. I thought I took it by habit, (as yesterday). There were no judgments of value, or associations ; no feeling of pleasure on seeing J, though it was recognised as *real*. There was no motivation ; I recognised them, and went automatically to the one at the left.

DEC. 5th. R. T. 1712. B. CHOSEN.

2. I was distracted on account of irregularity of the signal. A veritable oscillation (B, J, B, J), began. The second time I saw J, I reflected on its value, and I refused it. Then I took B, finding B less bad. There was no feeling of pleasure in taking it. All went slowly. I took the glass with a kind of hesitation. It was a veritable choice. I truly refused J as it was not worth much.

DEC. 14th. R. T. 1270. B. CHOSEN.

3. I saw B first, pretty superficially. Then J, which I examined, or rather on which I rested. I half released the button. I pressed back the button and saw B again, which I preferred to J. I took and drank it. It came immediately to conscience after the reaction that that way of reacting happened once before and (as I think) for the same words !

There were no feelings of pleasure or disgust. At first I was going to take J, my attention had been especially carried to it. I had nothing against it ; I had no repugnance for J.

DEC. 15th. R. T. 877. B. CHOSEN.

4. I saw B, at right, very quickly (superficially) ; then J, which I chose. But when half way on my movement, my hand went towards B, because J did not seem to me to be good. In the beginning of the

experiments the preference was mentally for J. That preference was not based on any reason. In the act of taking J, it seemed less good, or *not-good*. There was no comparison with B.

JAN. 26th. R. T. 1642. B. CHOSEN.

5. I saw in turn, B, J, B, J, B, J, and could not arrive at a decision. Then I preferred B without really knowing the reason. B is more familiar. J is more or less unknown. When I drink B, I believe that I would prefer to drink J. All the same, B would draw me again before J, as being more familiar.

JAN. 31st. R. T. 1152. B CHOSEN.

6. I saw in turn B, J, B, J, then I took B. A sentiment of Duty was conscious. The Duty was to take one of the two. I recalled having had some difficulty in choosing before. I took B, as it seemed the more familiar. When I drank it I was astonished at finding it an acid. I was determined, in the choice, by the word itself, without seeking the value of the taste.

FEB. 6th. R. T. 1006. J CHOSEN.

7. I saw rapidly each word twice. I was distracted. Then I felt a shock in my arm, tending towards it. I did not free the button. There were two movements in my arm, to react, and to take the glass. Then I took J without knowing why—automatically. I did not take a deliberately reasoned decision.

FEB. 10th. R. T. 809. B CHOSEN.

8. « I saw B first, superficially, then J. I recalled the difficulty I always have of choosing between the two. I took B immediately at the right. The word B seems to me more familiar.

C. THE Z—K CHOICES OF S[t].

DEC. 3rd. R. T. 860. Z CHOSEN.

1. I saw K first, and was conscious that it was good; at the same time, of the degree of goodness. It was of moderate, positive value. It appeared to me as best. Then there was a short void, or rather a very slight hesitation, then immediately the consciousness that Z is better. There were no words, but I was conscious in some way. Immediately, I took Z and drank it, automatically.

DEC. 7th. R. T. 687. Z CHOSEN.

2. I saw first Z passing, and had immediate consciousness « this », with signification, « it's this one ». There was no other phenomenon. Then I looked at K. I was, perhaps, astonished, and conscious, « it's a good one too », but at the same time I perceived it as not so good as the first. That comparison was not given in a separate act, but was given in the perception of the word itself, it appeared as not so good as the other. I came back to Z and had consciousness like, « that's right ». I took and drank it, automatically.

DEC. 12th. R. T. 682. Z CHOSEN.

3. I saw Z first and had a certain impression of value, it appeared as good, even as very good. I had that internal «Yes», which signifies, « It's possible ». Then there was a slight inhibition. I looked at K, and had consciousness of value too—or rather an impression of value. It appeared as good, but as having, at the same time, a less degree of goodness than Z. That appeared directly. A moment after I knew that '*It was Z*', meaning 'Z is the thing'. There was no consciousness of Duty.

DEC. 19th. R. T. 457. Z CHOSEN.

4. I saw Z first, then at the same moment had a feeling of pleasure and the consciousness, « It's this ». Then I looked at K, but I believe I reached it before K became clearly conscious. Then I experienced a feeling of astonishment, with the consciousness « Oh! it's a good one too. »

FEB. 3rd. R. T. 482. Z CHOSEN.

5. Prepared to take the best as quickly as possible. Read first Z and immediately thought; « Oh! yes! I may do with this what I thought of, just now ». I was conscious that I had a right to do so. I knew I had no more need to look at the other. After that I looked at K, I was slightly astonished to see K, which appeared as good.

FEB. 9th. R. T. 432. Z CHOSEN.

6. I read Z first—it grew clear in consciousness, and at the same time I had an auditive representation of K. Immediately when Z became clear it was accompanied by an internal « yes! » which meant, « It's this without doubt ».

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